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Book Reviews

The Council for Social and Economic Studies

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The Journal of SOCIAL, POLITICAL AND ECONOMIC STUDIES

Roger Pearson
General Editor
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The United States Post Cold War Military Space Policy

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This article examines the United States' military space policy since the end of the cold war. It analyses President Clinton's two terms of office and the start of President Bush's administration with respect to missile defence policy and military space policy. The Clinton administration's period in office saw political manoeuvring between Congress and the president over national missile defence plans. A number of congressionally initiated acts instigated a programme towards the building of a national missile defence system, including an exoatmospheric interceptor. It examines the significance and rationale for the United States withdrawal from the Antiballistic Missile Treaty. The Commission to Assess the U.S. National Security Space Management and Organisation reported during the first months of President Bush's administration. The impact this had on military space policy and the organisational changes it had on the space infrastructure are analysed. The space-based weapons that are being considered are outlined, and the impact and contribution military space assets have made to recent conflicts such as the campaign in Yugoslavia and events in Afghanistan are discussed.

Key Words: National Missile Defence, Military Space, Weaponisation of Space, Space Commission.

President Clinton's Missile Defence Policy

Inheriting the Global Protection Against Limited Strikes ballistic missile defence system in 1993, The Clinton administration promptly cancelled the development of the system. The priority was placed on the development of theatre missile defence with national missile defence placed into research and development. This reorientation of missile defence policy was reflected in the name change in May 1993 from the Strategic Defence Initiative Organisation to Ballistic Missile Defence Organisation, indicating the shift from strategic defence to theatre missile defence. The refocus was primarily to concentrate on ground-based defences with a reduced effort towards national missile defence.

The quest for a national missile defenceof the United States was undertaken by the Republican controlled House of Congress. The Congressional attempts to legislate for a national missile defence gave

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rise to a number of Missile Defence Acts. The first of these was the Missile Defence Act of 1995. This act called for the deployment of a ground based national missile defencewith multiple sites to be operational by 2003.[2] The act envisioned the deployment of up to one hundred ground-based interceptors, supported by space-based sensors. Also, contained with the act was U.S. intent to negotiate treaty changes with Russia, and if those negotiations failed, to withdraw from the treaty. However the Missile Defence Act of 1995 was unacceptable to the Clinton Administration and a bipartisan compromise was achieved. This watered down the previous provision and committed a ballistic missile defence system to be developed for deployment, and deployed only if Russia approves. If no approval was reached, the option of withdrawal from the treaty would be considered. The Secretary of Defence would develop an interim national missile defence plan that would give the United States the ability to field an operational capability by the end of 1999 if required by the threat. This compromise was approved on September 5, 1995.

The following year the Republican controlled Congress initiated the Defend America Act of 1996. The Defend America Act declared that it was the policy of the United States to deploy at the end of 2003 a national missile defencesystem that was capable of providing a highly effective defence against limited, unauthorised, or accidental ballistic missile attacks; and would be augmented over time to provide a layered defence against larger and more sophisticated ballistic missile threats as they emerged.[3] Unlike the Missile Defence Act of 1995, this act did not specify or explicitly restrict the United States to ground based systems; yet it did not explicitly challenge the ABM Treaty. The Congressional Budget Office estimated that the deployment of the proposed system would cost either thirty-one or sixty billion dollars, which led to the Defend America Act being withdrawn.[4] The attempt by the Republicans

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[2] Thomas Moore, "The Missile Defence Act of 1995: The Senate's Historic Opportunity", *The Heritage Foundation*, August 1, 1995.

[3] *The Defend America Act of 1996*, (U.S. Government Printing Office: Washington D.C.), March 1996.

[4] Frances Fitzgerald, *Way Out There In The Blue: Reagan, Star Wars And The End of the Cold War*, (Simon & Schuster: New York, 2000), p. 493.

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in the 1996 Presidential election year to make national missile defence a major issue during the campaign did not materialise. However, President Clinton and congressional Democrats had taken this issue seriously enough to adopt a compromise in the form of a deployment plan called the "3 plus 3" plan.

The National Missile Defence "3 plus 3" Programme

In reaction to Congress and concerned about the emergence of a ballistic missile threat to the United States sooner than the Intelligence Community projections, the Ballistic Missile Defence Organisation (BMDO) commissioned a Tiger Team study to identify feasible alternatives for a treaty-compliant national missile defence that could be deployed on a very short timeline. Both the Army and Air Force proposed architectural options to be developed as a plan of that study. The team estimated time scales of approximately four years to deployment and described several opportunities and associated challenges to deploy an interim NMD capability to deal with rudimentary Third World threats to the United States.

Early in 1995, the Department of Defence (DoD) had developed a set of national missile defenceprogramme options. These included an enhanced baseline development effort, an emergency response system, and an enhanced NMD technology programme. The enhanced NMD baseline programme became the Department's "3 plus 3" programme. The emergency response system included the Air Force and Army Options.

The U.S. Air Force Emergency Response Architecture

The Air Force recommendation consisted of an early deployment option, should a national emergency require fielding a NMD system before the 2003 time frame. Using the existing Minuteman intercontinental ballistic missile infrastructure, the architecture would deploy twenty Minuteman missiles equipped with kinetic energy kill vehicles in existing silos at Grand Forks AFB, North Dakota.[5] A network of upgraded early warning radars would support the interceptors. The Air

[5] Richard D. West, *Near-Term National Missile Defence Options*, House National Security Committer, Subcommittee on Military Research and military Procurement, June 18, 1996.

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Force projected that such an architecture would cost about $2.5 billion and could have been deployed in four years.

The U.S. Army Emergency Response Architecture

The Army responded to the emergency deployment challenge by proposing a booster that combined existing commercial booster stages to launch the kill vehicle. This kill vehicle was already under development. In order to enhance radar coverage, the Army proposed to augment early warning radars and utilise a ground based radar (GBR) that used technology adapted from the theatre missile defence system Theater High Altitude Area Defence (THAAD) GBR.[6] The Army estimate included the development, testing, production and fielding of a system that could have been operational in slightly more than four years. The Army proposal basically accelerates an architecture similar to the Defence Department's "3 plus 3" NMD.

The Department of Defence's
"3 plus 3" National Missile Defence Programme

In response to the evolving ballistic missile threat the NMD programme was elevated from a technology development effort to a Deployment Readiness Programme. A Joint Programme Office was established under BMDO with a charter to develop a NMD system for possible future deployment. The Department of Defence also designated NMD as a Major Defence Acquisition Programme (MDAP) to ensure it received an appropriate level of management attention and oversight.[7]

The mission of the NMD system was to defend against an ICBM attack consisting of several missiles from a rogue nation or a very small, accidental launch from more nuclear capable states. The system development was scheduled for completion within three years with an integrated test in 1999, to demonstrate the NMD system's capabilities. The decision to deploy the system was to be deferred until after a successful demonstration and validation of a threat. If a decision to deploy had been taken in 2000, additional funding would have been

[6] Ibid.
[7] Ibid.

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provided to achieve operational capability in another three years, by 2003.[8]

The Ballistic Missile Defence Organisation designed three NMD architectures named Capability 1, 2 and 3. The Capability 1 (C1) architecture was a single site defence from Grand Forks, North Dakota. It would have a deployment of 20 interceptor missiles, with an X-band ground based radar located within 150 kilometres of them.[9] The Capability 2 architecture would build on the existing C1 system, and add a further 80 interceptors to reach a total of 100 interceptors. The SBIRS-Low cold body tracking satellite would be incorporated into the system which would facilitate earlier launch of the interceptors. The time frame for the upgrade from the C1 to C2 system was around 2010. The Capability 3 architecture would add a further 100 interceptors or more, figures mentioned are in the range of 200 to 250. The interceptors would be spread around two or more sites.

The C1 and C2 interceptor numbers were combined in a statement by the Undersecretary of Defence for Policy with the announcement that any deployment of interceptors would be an initial 100.[10] This alteration was founded on the assumption that the 20 interceptors would provide protection against a threat of around 5 missiles. This would not have provided enough defence against a possible North Korean missile arsenal, so the NMD C1 system had to be expanded prior to the 2010 upgrade. Also, in order to meet the requirement of defending the entire United States, the Department of Defence began examining a deployment option in Alaska for the interceptors. In the revised plan, 20 interceptors would be deployed in 2005, and the additional 80 would be in place by 2007. The second site would be Grand Forks, North Dakota and would add a further 100 interceptors and be deployed in around 2010-11.

The National Missile Defence Exoatmospheric Kill Vehicle

The exoatmospheric kill vehicle (EKV) is the interceptor that kills

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[8] Ibid.

[9] David R. Tanks, *National Missile Defence: Policy Issues and Technological Capabilities*, (Washington D.C.: Institute for Foreign Policy Analysis, 2000), p. 4.3.

[10] Walter B. Slocombe, quoted in ibid., p. 4.7.

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the threat ballistic missile in space. The relevance of the national missile defencewith regard to the militarisation and weaponisation of space is that the intercept occurs in space. The NMD system incorporates a space weapon, that is a weapon with its intended destination confined to the realm of space. The EKV contains sensors to see the target array, a navigation system that plots the course of the vehicle, software to control the flight of the booster, computer processors and advanced algorithms in order to discriminate the target array and to plot the intercept course and fuel for manoeuvring the EKV.[11]

The first generation of EKV has only a passive visual/infrared sensor system which enables it to view the target array in two dimensions. They are equipped with a laser ring gyro inertial measurement system that allows the interceptors to be maintained in a dormant state prior to launch. The intercept control systems can be activated within seconds, the targeting information and a current star map loaded into the EKV's memory.[12] The EKV does not have an onboard capability to determine range to the target. The target array appears as points of light of varying intensities and frequencies projected on a horizontal plane. If the intended target is sunlit, the EKV will monitor the target array by means of its visible light sensor system. The two infrared sensors would scan for targets that maybe located in dark areas. This would be done by detecting the medium and long-wave infrared emissions from the target array using medium and long range focal plane arrays, each composed of 65, 536 pixels.[13] These pixels will be hit by infrared inputs that are filtered to determine the target array objects. The initial EKV will only be able to determine the distance from the target from information provided by the ground controlled radar tracking.

The closer the EKV gets to the target array, more pixels will become activated. In its final approach the target array will bloom and activate a large amount of pixels and the image of the target will fill the sensor's telescope.[14] The EKV would then proceed to align its path to make an

[11] David. R. Tanks, p. 3.13-3.14.
[12] Ibid., p. 4.10.
[13] Ibid., p. 3.14.
[14] Ibid., p. 3.15.

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intercept. The ability to divert its path to intercept is the critical determinant in the effectiveness of the kill vehicle. The kill vehicle manoeuvres on three axes. The 'burn out velocity' provides most of its motion. To move on the vertical and horizontal axes the onboard thrusters have to be operated, this speed is called the 'divert velocity'. Unlike endoatmospheric interceptors, exoatmospheric kill vehicles are unable to make sharp turning manoeuvres. Manoeuvring in space permits only minor turning movements. The amount of fuel the kill vehicle carries to operate the thrusters limits its divert capability. The fuel amount is a trade off, carrying extra fuel adds mass to the payload that could slow divert velocity, but less fuel reduces thrust time, and reduces manoeuvre capability.[15]

The National Missile Defence Act of 1999

The National Missile Defence Act of 1999 was passed with a veto proof majority. The 1999 NMD Act contained the following language:

> It is the policy of the United States to deploy as soon as technologically possible an effective National Missile Defence system capable of defending the territory of the United States against limited ballistic missile attack (whether accidental or deliberate) with funding subject to the annual authorisation of appropriations and annual appropriation funds for National Missile Defence.[16]

This majority was achievable with the publication in July 1998 of the Rumsfeld Commission to Assess the Ballistic Missile Threat to the Untied States and its finding that the United States could face a ballistic missile threat from a Third World country within the next five years with little or no warning, which was sooner than the National Intelligence Estimate had estimated. The report concluded that countries such as Iran and Iraq had been able to obtain technological assistance from other rogue countries and from industrialised countries with relaxed export controls. The CIA reaffirmed its assessment that no hostile country, with the possible exception of North Korea could acquire an ICBM before 2010. However, this was undermined in August 1998 when

[15] Ibid., p. 3.16.

[16] *National Missile Defence Act* of 1999, 106th Congress, 1st session, House Resolution 4.

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U.S. analysts were surprised by North Korea's test firing of a two-stage ballistic missile called Taepo Dong 1. The new exoatmospheric missile overflew northern Japan and landed in the Pacific Ocean and travelled approximately 1,500km. [17] Prior to this North Korea had only successfully test fired a single-stage missile. US intelligence had been anticipating the Taepo Dong 1 test, but they had believed that North Korea would have had a harder time in developing a two-stage vehicle.[18] The North Koreans subsequently claimed that they had been launching a satellite into orbit, which was confirmed by the Pentagon and State Department officials who announced that it was an attempt to launch a satellite with a three-stage Taepo Dong 1 booster.[19] The implication of the attempted launch is that if North Korea can orbit a satellite they can build an ICBM.

However, a failed national missile defencetest in July 2000 led President Clinton to postpone making the deployment decision envisioned in the "3 plus 3" plan. The decision effectively put the deployment decision for a national missile defenceto be decided after the presidential elections in September 2000. The emergence of President George W. Bush in the elections meant that the newly elected Republican President would decide the future course of the national missile defence programme.

President Clinton's Military Space Policy

The National Space Policy (Presidential Directive 7) was announced on September 19, 1996. One of the most significant aspects of this policy was the convergence of some defence space programmes with civil space programmes, with the promotion of the Pentagon's utilisation of commercial services.[20] The rationale behind this shift to commercial services, especially in the realm of communications is better efficiency and cost savings. Governmental investment in the development of the

[17] Joseph C. Anselmo, "Missile Test Extends North Korea's Reach", *Aviation Week & Space Technology*, September 7, 1998, p. 56.

[18] Ibid.

[19] David A. Fulghum, "North Korea Space Attempt Verified", *Aviation Week & Space Technology*, September 21, 1998, p. 30.

[20] Steven Lambakis, *On The Edge of Earth: The Future of American Space Power*, (University Press of Kentucky: Lexington, Kentucky, 2001), p.232.

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infrastructure is being transferred to the exploitation of commercial services and products, which are frequently developing at a quicker pace than the public sector.

The National Space Policy acknowledged for the first time the existence of U.S. photoreconnaissance satellites having a near real-time capability for intelligence collection, defence planning and military operations. The existence of the National Reconnaissance Office and senior officer positions were also declassified. This began a process of eliminating excessive classification of U.S. military space policy and organisations.[21] The space policy directed the defence and intelligence sectors to work closer together. The secretary of defence was given authority to propose modifications to intelligence gathering satellites and develop and operate Defence Department satellites if intelligence space systems could not provide the necessary intelligence support. The National Space Policy adopted many of the lessons learned from Desert Storm, and recognised that space systems had become a critical tool.

The Military Space Organisational Changes Under the Clinton Administration

There were a number of significant changes to the organisations responsible for conducting military space operations. The Space Warfare Centre (SWC) under the auspices of the Air Force Space Command had its range of tasks increased during the mid 1990s. The SWC's tasks ranged from identifying the merits of futuristic ideas to turning quick reaction space systems into operational units.[22] The SWC now parallels the work of other military warfare centres. It was made responsible for integrating air and space operations. This included developing space tactics, crew manuals and training courses for Air Force personnel who are involved in utilising space-derived information to increase mission effectiveness. The SWC will develop and publish a Multi-Command Manual (MCM) for space. This would become a primary information source on space systems' capabilities, including tactics and characteristics that need to be considered when planning a

[21] Ibid., p. 233.

[22] William B. Scott, "Space Warfare Centre Aims to Be 'Nellis of Space'", *Aviation Week & Space Technology*, September 1, 1997, p. 49.

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mission. The expanded role of the SWC includes the Space Battlelab, which is the central clearing house for military space ideas. The battlelab based at Schriever Air Force Base, focuses on innovative space operations and logistics concepts and tests the concepts in operational situations. This evaluation relies on modelling and simulation, along with field-level prototyping and trials. One project considered by the lab was using unmanned aerial vehicles as data relay platforms during satellite launches and early on-orbit operations. Currently, advanced range information aircraft must provide the necessary command and control links where communication or sensor gaps exist.[23]

The SWC also had the 17th Test Squadron added, which has responsibility for all space forces operational testing and evaluation. The SWC already is home to the 576th Flight Test Squadron which contains the ICBM Minuteman and Peacekeeper flight tests. In addition, modelling and simulation analysis that creates computer models of space systems, both current and future, became part of the SWC. They are physics based models that for example, show where a satellite will be on a certain occasion to ensure a sensor can view a target.[24] Also, the unit produces models for space wargames in multiservice exercises.

One such event was the Pentagon's "Title 10" war game examining military space. "Title 10" was set in the period 2010-2017 and demonstrated the value of advanced systems, such as rapid-response space planes and on-orbit radar constellations. The previous war games conducted by the U.S. Air Force, "Global Engagement V" and the Navy's "Global 2000" war games underscored the importance of a deep-look, rapid strike capability to locate and destroy time-sensitive targets in enemy territory.[25] Prior to this, there had been war games that had included space assets, but Global Engagement V and Global 2000 were more realistic in the sense that the teams had not been given a large number of space-strike capabilities. The insights from these war games were that the United States requires a capability to rapidly reconstitute

[23] William B. Scott, "USAF Space Battlelab Assessing New Concepts", *Aviation Week & Space Technology*, September 1, 1997, p. 52.

[24] Ibid., p. 50.

[25] William B. Scott, "Wargames Zero In On Knotty Milspace Issues", *Aviation Week & Space Technology*, January 29, 2001, p. 53.

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its national security platforms. If an adversary knocks out of commission 6, 8 or 10 satellites, these need to be replaced. During Global Engagement V they were replaced by microsatellites which were put into orbit by space orbiting vehicles. The timing signals from the Global Positioning System that are vital to network-centric warfare require multiple platforms and systems in order to synchronise actions. This has led to concerns regarding GPS vulnerability.[26] A further insight was the United States does not have a current or programmed means to quickly strike important, time sensitive targets deep inside a country.

The vulnerability of satellites to laser attack has led the U.S. Air Force Research Laboratory's Space Vehicles Directorate to develop sensors that are designed to detect intentional interference with a satellite. The ground crews would then be alerted to such an attack and would be able to take action. The systems would fly on board military and civilian satellites, detecting, identifying, characterising and reporting any radio frequency and laser interference with U.S. and allied spacecraft.[27] This would enable the ground crews to understand the impact of any attack might have on the satellites' mission and be able to predict any degradation in performance of the satellite.

The outcomes of these two games were incorporated into "Title 10", the first national-scale war game committed to military space held in January 2001, called the Schriever 2001 war game. The focus of Schriever 2001 was to explore the requirements for space control and space force application required to support an expeditionary aerospace force, along with ongoing joint-service and government agency needs. In addition to this, the wargame sought to explore counters to an adversary's space and intelligence, surveillance and reconnaissance (ISR) capabilities, and to evaluate an enemy's actions that could deny the U.S. and its allies' space assets.[28] The participants were high-level current and former military and government officials, along with a "commercial cell" familiar with the space industry.

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[26] Ibid., p. 55.

[27] William B. Scott, "New Satellites Sensors Will Detect RF, Laser Attacks", *Aviation Week & Space Technology*, August 2, 1999, p. 57.

[28] William B. Scott, "Wargames Zero In On Knotty Milspace Issues", *Aviation Week & Space Technology*, January 29, 2001, pp. 53-54.

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The war game was set in 2017 and began with a fictional scenario. A large space-capable "near peer" country (Red) massed its forces near the border of a nation (Brown) which called on the United States and its allies (Blue) for protection. The Blue team found it difficult to intervene due to political and economic complications. There were two parallel games played. The Blue team was equipped with a force that the U.S. Air Force could expect to have in 2017 if it continued on its current programmed course, buying airplanes and weapons and slowly building its space capabilities. The second Blue team was considered a robust force that would be in place if more funds were committed to developing and fielding a strong air and space presence.[29] These two teams were pitted against the Red teams that had the same assets, enabling a comparison to be made between the effectiveness of the programmed or robust Blue forces. One of the lessons learned was the deterrent capabilities of space assets. Adversaries are less likely to mount a surprise attack if they are aware that their movements are being monitored.[30]

The Clinton Administration's Second Term

In the second term of the Clinton Administration, Secretary of Defence William Cohen issued a new Defence Directive to replace the 1987 version, on July 9, 1999. The new directive did not differ significantly from existing policies announced in previous documents. It reaffirmed the importance of military space to U.S. military strategy and the requirement of achieving information superiority.[31] Of particular note, the directive stated that any interference with U.S. space systems would be viewed as an infringement of U.S. sovereign rights, and the U.S. may take appropriate self-defence measures, including the use of force.[32] The directive therefore subtly added to the capability to control space outlined in the 1987 version with the provision "if directed." In

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[29] William B. Scott, "Wargame: 'Space' Can Deter, Defuse Crisis", *Aviation Week & Space Technology*, February 5, 2001, p. 40.

[30] Ibid. & James Kitfield, "The Permanent Frontier", *The National Journal*, March 17, 2001, [internet accessed 2/7/02 http://www.globalsecurity.org/org/news/2001/010317-nj.htm].

[31] Department of Defence Directive, *Space Policy*, Number 3100.10, July 9, 1999.

[32] Ibid., p. 6.

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addition to this, the directive proposes "the ability to perform space force applications in the future could add a new dimension to U.S. military power."[33] The directive defines space force applications as:

> Combat operations in, through, and from space to influence the course and outcome of conflict. The force application mission area includes: ballistic missile defence and force projection.[34]

Force application from space was included as a long range planning objective and was specifically referred to. The aim was to "explore force application concepts, doctrine, and technologies consistent with Presidential policy as well as U.S. and applicable international law."[35]

The Clinton Administration viewed military space with a fairly low priority. Military space budgets were relatively low during the two administration periods. Also, the National Space Council was terminated, which had enabled space issues to receive executive level attention. It was replaced by the National Science and Technology Council which has responsibility for space, along with other science and technology policy matters. Within the Pentagon, the deputy undersecretary of defence for space which coordinated space policy and procurement matters was dissolved, this was added to the C^3I office in the Pentagon. The office of National Space Architect was reformulated into the National Security Space Architect. The Clinton Administration had lowered the profile of defence space by merging the individual organisations that had been established into other non-specific bureaucracies.[36]

President Bush and Missile Defence

President Bush in a speech at the National Defence University announced the administration's policy towards ballistic missile defence for the first time since the presidential elections. The following quote highlights the central thrust and the rationale for national missile defence:

> ...today's most urgent threat stems not from thousands of ballistic

[33] Ibid., p. 3.
[34] Ibid., p. 23.
[35] Ibid., p. 9.
[36] Steven Lambakis, p. 234.

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> missiles in the Soviet hands, but from a small number of missiles in the hands of these states, states for whom terror and blackmail are a way of life. I asked the secretary of Defence Rumsfeld to examine the available technologies and basing modes for effective missile defences that could protect the United States, our deployed forces, our friends and our allies.[37]

The speech announced a widening of possible national missile defence architectures beyond the former architecture developed under the previous administration, and also covering friends and allies. Although, the national missile defence architectural design will focus initially on defending the United States first. The national has been omitted from National Missile Defence, to become Missile Defence to emphasise the international aspect of the new administration's ballistic missile defence policy. The Ballistic Missile Defence Organisation was given a new name from January 1, 2002 to Missile Defence Agency.

The United States Withdrawal From the ABM Treaty

On December 13, 2001 the United States provided formal notification that it was withdrawing from the ABM Treaty as set out under Article XV of the Treaty which permits a six month notice of withdrawal. The rationale behind the withdrawal of the ABM Treaty is the altered strategic environment since signing in 1972 especially with regard to the United States' relationship with Russia. The present threat environment includes rogue states that are acquiring increasingly longer-range ballistic missiles as instrument of coercion and blackmail against the United States and its allies.[38] The ABM Treaty prohibits the United States from defending its national territory from ballistic missile attack, and the United States considers defending against these threats to be imperative. The rationale also cites the ABM Treaty's limitations on the United States cooperating with allies with regard to developing missile defences and its intention to undertake such cooperation in the future.

The United States withdrawal from the ABM Treaty has important

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[37] President Bush speech at the National Defence University, Washington D.C., May 1, 2001 quoted in Bhupendra Jasani, "US National Missile Defence and International Security: Blessing or Blight?" *Space Policy*, November 2001, p. 243.

[38] *ABM Treaty Factsheet*, Office of the Press Secretary to the White House, December 13, 2001.

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ramifications for the weaponisation of space. It removes the international treaty which prohibited the deployment of space based weapons and the restrictions on nation wide missile defences. This move paves the way for possible deployment of the space based laser as discussed in a previous chapter. It also removes any restrictions from the United States plan to develop a nationwide missile defence system. This missile defence system will incorporate space based assets and indeed an exoatmospheric interceptor, which will see the further militarization and weaponisation of space.

Attempts for Arms Control in Space

There have been recent efforts in the United National Conference on Disarmament to place restrictions on the types of weapons being placed in space. The move was to expand the 1967 Outer Space Treaty to ban all types of weapons. The talks were known as PAROS, the "prevention of an arms race in outer space." The talks have been stalled due mainly to the objections of the United States.[39] In November 2000 the United States, Israel and Micronesia refused to vote for a UN resolution citing the need for steps to prevent the arming of space. It is not surprising that the United States does not want to place limits on its plans to use space for missile defence and space control purposes. Russia and China have been proponents pushing for such a treaty. Indeed, Russia has been advancing the establishment of an *ad hoc* negotiating structure as a preliminary step.[40]

The Commission to Assess U.S. National Security Space Management and Organisation

The Space Commission report called for a top-down realignment of the Deparment of Defence's space infrastructure. The panel recommended that the Air Force be given "Title 10" responsibility for organising, training and equipping space forces, and making the US Air Force the nation's executive agent for space.[41] However, there were

[39] Theresa Hitchens, "Rushing to Weaponise the Final Frontier", *Arms Control Today*, September 2001, [internet accessed 17/6/02: http://www.armscontrol.org/act/2001_09/hitchenssept01.asp

[40] Ibid.

[41] William B. Scott, "USAF Warned to Bolster or Lose 'Space Force' Franchise", *Aviation Week & Space Technology*, January 29, 2001, p. 55.

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provisions for initiating a transfer to a separate space corps 'as soon as practicable which is being widely interpreted as 5-10 years from now. The Commission cited the Navy's nuclear branch as a model the Air Force might want to consider for its space forces. This would mean that space would have an independent promotion system and funding. Admiral David E. Jeremiah, the panel's new chairman after Rumsfeld stepped down, indicated that the commissioners preferred an initial arrangement to keep the space experts within the basic Air Force. The commission did not advocate the creation of a near-independent service, such as the Marine Corps, but preferred the former Army Air Corps structure.[42]

The Space Commission and the implementation of some of its recommendations has seen some significant organisational changes in the realm of military space policy. The importance of the Space Commission report that was released in January 2001 was signified with the chairman Donald Rumsfeld's elevation to the position of Secretary of Defence. A National Security Space Architect (NSSA) office has been established to examine near-term transformation issues. Prior to this the Pentagon's space architect was focused on defining communications satellites and other architectures with a time frame for implementation in around 15-25 years time. Army Brigadier Stephen Ferrell is the NSSA chief, with responsibility to integrate the needs of the Army, Air Force, Navy, Marine Corps and other agencies. Associated with this a Defence Space Acquisition Board was established to reduce a programme's milestone approval process from a year to a matter of weeks. In addition to this a Programme Executive Officer for U.S. Air Force space programmes was designated, who would report directly to the Defence Department Executive Agent for Space on space system acquisition issues.

A Directorate of National Security Space Integration was created with the responsibility of combining the best practices of the black (secret) and white (open) space worlds to improve the integration processes.[43] This is run by Brigadier General Michael Hamel, and contains around 25-30 personnel. This office is intended to support Peter Teets, who is the Director of the NRO and Air Force undersecre-

[42] Ibid.

[43] William B. Scott, "Milspace Comes of Age In Fighting Terror", *Aviation Week & Space Technology*, April 8, 2002, p. 78.

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tary and is the executive agent for space. It is also tasked with coordinating initiatives ranging from communication between the military and intelligence agencies, to planning, policy development and budget synchronisation.[44] In particular on policy, the organisation will be involved on export controls and international cooperation on space matters.

A significant boost for military space was the appointment of a four star commander for Air Force Space Command. Previously, one general simultaneously headed U.S. Space Command, Air Force Space Command and the North American Aerospace Defence Command. The U.S. Navy is increasing the importance of Naval Space Command. The Navy is forming a Network Warfare Command (NetWarCom) under a three star general. As part of the changes, Naval Space Command will be called Naval Network and Space Operations Command under the NetWarCom, also it will move offices to Norfolk, Virginia. These changes should make the personnel and control centre more integral in real time operations and a stronger advocate for naval space research and technology development.[45]

Indeed the Space Commission chaired by Rumsfeld added impetus to the case for developing an antisatellite capability. The prestige of the Space Commission was further enhanced when its chair was subsequently given the post of Secretary of Defence. The Commission highlighted the enormous vulnerability of the United States space assets to possible attack and strongly emphasised the United States dependency on these assets.[46] The strong emphasis and the political clout of the Space Commission highlighted one of the major rationales for developing an ASAT capability. Namely, the requirement to be able to disrupt an adversaries space capabilities perhaps to deter an adversary from undertaking an attack on US space capabilities, but at least to be able to conduct some form of retaliatory attack on an adversary's space assets. To ensure that the adversary is unable to glean advantage of its space assets during a conflict, whilst the United States had lost its military space capabilities. The Space Commission states that "the U.S. must

[44] Robert Wall, "Space Reformers Juggle War, Acquisition Demands", *Aviation Week & Space Technology*, April 8, 2002, p. 81.

[45] "Navy Shift Elevates Space", *Aviation Week & Space Technology*, April 8, 2002, p. 88.

[46] *The Commission to Assess U.S. National Security Space Management and Organisation*, (Washington D.C., U.S. Government Printing Office), January 11, 2001

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have the capabilities to defend its space assets against hostile acts and to negate the hostile use of space against U.S. interests."[47] It goes on to advocate a U.S. ASAT requirement by declaring that "The U.S. will require means of negating satellite threats, whether temporary and reversible or physically destructive."[48]

The Space Commission provided invaluable political pressure for the United States to develop an antisatellite capability. The report provided a timely reminder of the United States' vulnerability to space threats and its current lack of ability to deal with such threats. The advocacy of an antisatellite capability by the panel of experts should contribute greatly to the antisatellite debate, and provide an impetus to the politics of acquiring such a capability.

Space-Based Missile Defences

The restructuring of the Space Based Laser (SBL) programme led to the cancellation of the Integrated Flight Experiment that was to develop a demonstration experimental laser in space by 2012.[49] The restructuring of the programme is part of a wider Missile Defence Agency approach that is following a capability based approach. This approach is to identify affordable operational concepts and to focus on early contributions to mid-course and terminal systems. The focus of the SBL programme is on key technologies supporting a future system, with no specific focus date. The restructuring of the programme could lead to a redefined experimental SBL ahead of the original 2012 schedule.[50]

The space-based hit to kill programme that was cancelled in 1993 was resurrected in the Fiscal 2002 budget.[51] The initial funds are to assess the technology available for a system with a mid-term goal of an in-orbit experimental system by 2005-6. The space based experiment will differ from the original Brilliant Pebbles concept planned in the early

[47] Ibid., p. 13.

[48] Ibid., p. 29.

[49] Colonel Ivette Falto-Heck, Sytem Programme Director, SBL Project Office, Space & Missiles Systems Centre Air Force Space Command, "Space Based Laser (SBL) Requirements for Expermental Missile Defence System", Presentation at *SMi Military Battle Space Conference*, May 29, 2002, p. 17.

[50] Interview with Colonel Ivette Falto-Heck, Sytem Programme Director, SBL Project Office, Space & Missiles Systems Centre Air Force Space Command, May 29, 2002.

[51] Robert Wall, "Space-Based Interceptor Gets New Lease of Life", *Aviation Week & Space Technology*, August 13, 2001 [internet version accessed October 31, 2001: http://www.awstonline.com]

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1990s, in several ways. The Brilliant Pebbles concept envisioned placing space-based interceptors in orbit for around 18 months and capable of performing multiple engagements. The current interceptor would be launched in close succession with the target and would have no station-keeping capability.[52] It would be essentially a one-time event and subsequently any follow-on tests would require new hardware.

Although research in the area has been absent for a decade, through developments in the commercial sector and in other defence programmes it is believed that the Brilliant Pebbles concept could be updated for boost-phase intercept from space.[53] The efficiency of small pump-fed engines and the impulse of solid axial engines have improved which was a major limitation in the acceleration and maximum velocity of Brilliant Pebbles. An interceptor with a 10g acceleration and a maximum speed of $10kms^{-1}$ would have a range of around 400km to intercept a target that requires 90 seconds to accelerate.[54] An interceptor with 20g acceleration could cover a range of 800km.[55]

Space Based Weapons Against Terrestrial Targets

The notion of space force applications mentioned in the Space Policy directive in 1999 included force projection from space. Prior to this the U.S Space Command's Long Range Plan (LRP) explored the concept of force application from space, but placed this caveat on that "at present, the notion of space weapons in space is not consistent with U.S. National Policy. Planning for this possibility is the purpose of this plan should our civilian leadership later decide that the application of force from space is in our national interest."[56] The LRP outlines an aspiration that by 2020 concepts such as Conventional Ballistic Missiles Common Aero Vehicle, Space-Based Platform, and Space Operations Vehicle will provide on-demand precision engagement from space.[57] The Common Aero Vehicle (CAV) would be a satellite deployed in low earth orbit and would slow from orbital speeds to dispense conventional

[52] Ibid.

[53] Gregory Canavan, a Los Alamos Laboratory engineer, quoted in Robert Wall, "Space-Based Interceptor Gets New Lease of Life", *Aviation Week & Space Technology*, August 13, 2001

[54] Ibid.

[55] Ibid.

[56] Howell M. Estes, *US Space Command Long Range Plan*, (Colorado Springs: Headquarters, U.S. Command, 1998), p. 65.

[57] Ibid., p. 67.

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munitions.[58] Another option for the CAV is to use air launched suborbital missiles or ICBMS to deliver it. The slowing down of the CAV relinquishes the ability to hit targets from orbital speeds.[59] These concepts will provide the ability to attack a number of targets be they fixed, relocatable or moving high-value targets, nearly instantaneously.

The Defence Science Board, a senior advisory panel to the U.S. Department of Defence recommended that the Pentagon consider researching, developing and fielding a series of new capabilities. Of these new capabilities those pertaining to space weapons are a two stage intercontinental ballistic missile-launched precision weapon using GPS for guidance using kinetic energy or conventional projectiles.[60] A further recommendation includes a constellation of orbiting vehicles containing rods of heavy material in highly elliptical orbits to re-enter the atmosphere, and hit targets at speeds of 10,000fts^{-1}.[61] The concept of kinetic energy striking from space to terrestrial targets uses the kinetic energy obtained from the weapon's high velocity (around 5 to 11kms^{-1}) into work and heat. However, to reach velocities in the region of 11kms^{-1} the weapons would have to be in orbits at an altitude of more than 40,000km and would require around five hours to hit the earth's surface.[62] Therefore a sacrifice in the velocity of the projectile would have to be made in order to make the weapon more time responsive. Lowering the orbit of the weapon to an orbit of 500 miles (926 km) would reduce the velocity to 5kms^{-1}, and could strike in less than 12 minutes.[63]

These weapons would be very difficult to defend against due to the high velocity achieved from their operation from space and may be useful against heavily defended targets. The United States has other methods of power projection so these weapons may be of only limited interest, but another country that seeks global power projection and

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[58] William L. Spacy II, Major USAF, "Does the United States Need Space-Based Weapons?" *College of Aerospace Doctrine, Research & Education*, (Maxwell Air Force Base: Air University Press, 1999), p. 29.

[59] Ibid.

[60] Bryan Bender, "US Blueprint for Future Weapons Systems is Outlined", *Jane's Defence Weekly*, May 26, 1999, p. 11.

[61] Ibid.

[62] William L. Spacy II, Major USAF, "Does the United States Need Space-Based Weapons?" *College of Aerospace Doctrine, Research & Education*, (Maxwell Air Force Base: Air University Press, 1999), p. 26.

[63] Ibid., p. 27.

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does not wish to emulate the United States' defence investment could have an interest in them.[64] One design suggested for use as a kinetic energy project is a thin, heavy metal rod one or two metres long.[65] The rods would have to remain symmetrical and be delivered with a zero angle of attack to avoid any tendency to fly. The range of targets that could be hit from using metal rods would include tall buildings, missile silos and hardened aircraft shelters but not runways, deeply buried bunkers, bridges and long low buildings.[66]

Other targets that have been mentioned as being susceptible are surface ships including aircraft carriers[67], although this has been caveated with the proviso as long as the ship is unable to move too far unpredictably in the few seconds it takes the weapon to re-enter the atmosphere.[68] This arises since targeting adjustments are possible during the weapons flight outside the atmosphere, along with small changes up to a few tens of seconds before impact.[69] Other designs are to fit the rod with an ultrahard penetrator with an explosive warhead or a warhead that fragments upon impact. The penetrator approach enables the weapon to penetrate deeper than eroding rods by detonating at a preset depth using the time from initial impact, or when it reaches an area of low resistance such as a room. Although the materials that are hard enough to remain intact during the penetration phase are still under investigation.[70]

A concept that although not being space based would indeed traverse through space is transatmospheric vehicles (TAV). These weapons would be launched on demand and would be designed as reusable vehicles to put payloads in orbit and deliver them anywhere in the world within hours.[71] The platform that holds most promise to launch the TAVs is to launch them from aircraft. By utilising the aircraft it

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[64] Bob Preston, Dana J. Johnson, Sean J.A. Edwards, Michael Miller & Calvin Shipbaugh, *Space Weapons Earth Wars*, (Arlington Virginia: RAND, 2002), p. 40.

[65] William L. Spacy, p. 27.

[66] Bob Preston, et. al., pp. 40-41.

[67] Kenneth Roy "Ship Killers From Low Earth Orbit" *US Naval Institute Proceedings*, October 1997, pp 40-43.

[68] Bob Preston, et. al., p.40.

[69] Bob Preston, et. al., p. 43.

[70] William L. Spacy, p. 27.

[71] William L. Spacy, p. 78.

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effectively acts as the first stage of the TAV.[72] A similar concept was used with the miniature homing vehicle in an antisatellite role aboard a modified F-15. A limitation associated with using an aircraft as a basing mode for the TAV is that the weight is restricted to the capacity of the aircraft. However a Phillips Laboratory Military TAV Technical Requirements Document specifies a desired payload of 1,000lbs[73] that is within the capability of aircraft platforms.

The advantage of TAVs over space-based weapons is the ambiguity of the basing of the weapon. The ambiguity lies in the fact that it is not based in space. The weapon is launched when required and is not permanently based in space. This political nuance gives TAVs an advantage over space-based platforms despite the fact that it does strike from space with the same power as space-based weapons since it travels at orbital speeds.[74] In addition to this politically beneficial factor TAVs have an advantage since they could be launched from aircraft they could operate at a lower cost than the space-based equivalents. The launch on demand system TAV would face the same degree of difficulty to intercept as space-based weapons in orbit and could possibly be more difficult than those on an orbital track in space.[75]

The Role of Military Space in Recent Conflicts

Since the Persian Gulf War there has been a concentration on getting space derived information to troops in the field. The U.S. Space Command commanders in chief have been focused on operationalising space, that is transferring information from satellites to frontline commanders to enable them to leverage space assets more efficiently.[76]

The Yugoslavia Campaign

Intensive space reconnaissance missions were undertaken to lead NATO targeting operations and bomb damage assessments of the strikes against Yugoslavia in 1999. Imagery analysts were under pressure

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[72] David Gonzales, Mel Eisman, Calvin Shipbaugh, Timothy Bonds & Anh Tuan Le, *Proceedings of the RAND Project AIR FORCE Workshop on Transatmospheric Vehicles*, Rand Report MR-890-AF, (Santa Monica, California: RAND, 1997), p. 32

[73] Ibid., p. 14.

[74] William L. Spacy, p. 79.

[75] Ibid., p. 81.

[76] William B. Scott, "Cincspace: Focus More on Space Control", *Aviation Week & Space Technology*, November 13, 2000, p. 80.

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to provide imagery to strike planners and the air crews undertaking the missions. There had been concern prior to the air strikes whether a late 1996 reorganisation of imaging operations had left the intelligence community with sufficient analysts to sustain such a large operation.[77] Another area of concern was whether the imagery intelligence community would be able to maintain critical watch over priority areas such as North Korea, Iraq, China, India and Pakistan whilst attention was being focused on Yugoslavia.

The National Reconnaissance Office's three advanced KH-11 visible/infrared electro-optical satellites were used to image refugee lines of individuals from orbits of 170 x 629 miles altitude. Each of them flew over the conflict area twice daily and provided some slant-range imagery on passes to the east and west of the region. The infrared sensors were also capable of detecting hundreds of tiny camp fires from displaced persons in southern Yugoslavia. It was speculated that three other highly secret, smaller NRO imaging satellites may have been involved in the operation.[78] There was an unprecedented level of space systems involved in multiple areas of the NATO action, which indicates the level of air and space integration. The GPS constellation provided critical navigation data to air crews and specific precion guided weapons to their target. The standard GPS system is comprised of 24 satellites, but as many as 27 were operational.[79]

During the operations NATO strike planners and space officers coordinated their planning to ensure that precision guided weapons were dropped when GPS satellites were in the best position to direct the weapons onto the specified targets. The relative positions of specific GPS satellites and strike coordinates and timing enabled a calculation to ascertain the best navigation data to the aircraft or weapon. The Kosovo campaign was the first time the United States used the Joint Direct Attack Munition, an all weather precision guided bomb, that costs around $21,000 as opposed to the $1 million Tomahawk cruise missiles.[80]

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[77] Craig Covault, "Recon, GPS Operations Critical to NATO Strikes", *Aviation Week & Space Technology*, April 26, 1999, p. 35.

[78] Craig Covault, "Military Space Dominates Air Strikes", *Aviation Week & Space Technology*, March 29, 1999, p. 32.

[79] Craig Covault, "Recon, GPS Operations Critical to NATO Strikes", *Aviation Week & Space Technology*, April 26, 1999, p. 36.

[80] James Kitfield, "The Permanent Frontier", *The National Journal*, March 17, 2001, [internet accessed 2/7/02 http://www.globalsecurity .org/org/news/2001/010317-nj.htm].

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The GPS receiver, depending upon the type used in the aircraft or weapon, could be receiving data from as many as 11 GPS satellites. The 2nd Space Operations Squadron under the 50th Operations Group at Schriever Air Force Base, Colorado manages the GPS navigation payloads for strike support.

Over 50 U.S. and European satellites were involved in NATO coordination, intelligence and strike operations. In planning and executing the attacks there were more than 15-20 different U.S. and European types of space systems. The U.S. Air Force Space Command classified the previously public orbital data on U.S. military satellites. This denied the open flow of data to trained analysts in Yugoslavia which could have used the information to determine the overflight times of the satellites involved in strike and intelligence support, which could have provided clues to the timing of tactical operations.[81] The Lacrosse imaging radar system provided pre-strike intelligence and post-strike damage assessment of targets in forest terrain, which is sometimes obscured from visible or infrared systems by inclement weather. Two of the Lacrosse imaging radar satellites flew over the Yugoslav/Kosovo area twice daily.[82] These satellites provided 1-3 feet resolutions that enabled damage assessments during the night and in all weather conditions. It also enabled Serbian armour or mobile SA-6 surface-to-air missile systems to be targeted, even if they were concealed in forested areas.

The weather conditions in Eastern Europe were such that local conditions were frequently changing. This made weather satellite operations vital to strike planning and the timing of reconnaissance imaging operations. There were ten U.S. and European weather satellites that provided imagery which aided these operations. These included four U.S. Air Force Defence Meteorological Satellite Programme satellites in 500 mile polar orbits. These could provide weather image resolutions as small as around 1,000 feet. Four National Oceanic and Atmospheric Administration polar-orbit weather satellites – NOAA-10, 12, 14 and 15 also assisted in this capacity. NOAA-12 and 15 were positioned on opposite sides of the same ground tracks, which enabled them to over fly the same areas an hour apart, which provided

[81] Craig Covault, "Military Space Dominates Air Strikes", *Aviation Week & Space Technology*, March 29, 1999, p. 31.

[82] Ibid., p. 32.

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information on short-term changes.[83]

The Events in Afghanistan

Space systems are providing the collection, processing and dissemination of time-critical information to help military locate enemy forces. It is enabling the precise targeting of an ethereal enemy, rapid and effective air strikes and minimising allied casualties. In particular, near-real time video from Predator UAVs is being relayed by communications satellites to enable targets to be identified and attacked on the ground.[84] The Army has been coordinating with national agencies to produce 3D 'fly throughs' of terrains before troops and aviators approach that area. Space control assets have been in operation to deny Al Qaeda and Taliban forces satellite communications.

The U.S. Naval Space Command has provided communications support which has been vital to the Marines Corps, but the Remote Sensing Information Centre has provided the Marines with multispectral satellite (MSS) imagery of shorelines along the Arabian Sea and the Straits of Hormuz.[85] This assists the Marine Corps with information in which intelligence analysts can determine landing zones or Al Qaeda fighers in concealed locations. The command has also contributed to the United States homeland defence, with the MSS imagery of around 28 ports to assist with port security.

During the campaign in Afghanistan, the U.S. launched a fourth Milstar defence communications satellite to make the network for rapidly moving communications to military forces more robust. The three operational Milstars had seen a 10-15% increase in theater operations traffic since the September 11th attack. The fourth satellite is expected to improve flexibility for Army, Special Ops Forces and other users by permitting relays of high priority information, including imagery, around the Earth via satellite crosslinks. Space to Earth bounces through ground stations are no longer necessary.[86] Milstar has been used during the campaign to route updated Tomahawk targeting

[83] Ibid., p. 33.

[84] William B. Scott, "Milspace Comes of Age In Fighting Terror", *Aviation Week & Space Technology*, April 8, 2002, p. 77.

[85] Craig Covault, "Naval Space Ops Crucial to Afghan War", *Aviation Week & Space Technology*, April 8, 2002, p. 86.

[86] William B. Scott, "Milstar Ring to Speed Data Toward Combat Zones", *Aviation Week & Space Technology*, January 21, 2002, p. 28.

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data to U.S. Naval carrier battle groups in the Central Asian theater.

U.S. Space Command and its Air Force, Army, and Navy components have refined military satellite communications procedures and augmented capacity with commercial resources as required.[87] The controllers at Schriever Air Force Base, Colorado, fine tuned the GPS satellites to ensure the premium navigation information was available for near-precision GPS aided weapon deliveries. Increasing efficient use of bandwith when downloading weather satellite data has provided more frequent updates to terrestrial and space weather forecasts. These are critical to the success of air strikes and special forces missions.

Conclusion

The issue of military space has significantly come to the fore in the period following the end of the Cold War. The issue that has made the most impact with regard to the increasing militarising and weaponising of space is missile defence. This issue in particular was prevalent in both terms of the Clinton Administration. There were a series of National Missile Defence Acts initiatives from Congress in an attempt to develop a system to counter a limited ballistic missile attack on the United States. There was stringent opposition to these proposals from President Clinton until out of political expediency prior to the presidential elections the requirement for a missile defence system was accepted, in the form of the "3 plus 3" programme. This missile defence architecture envisioned the use of an exoatmospheric interceptor, that impacts on the threat ballistic missile in space. The lack of success during the initial testing period led the decision of deployment during the Clinton presidency to be deferred to President Bush. The Bush administration announced a fundamental review of national missile defence, and removed the "national" from its terminology to announce a widening of missile defence, to include allies. The withdrawal from the ABM Treaty signalled the serious intent of the new administration to develop a nationwide missile defence system some time in the immediate future.

Military space policy during the Clinton Administration received fairly low prioritisation. The 1996 National Space Policy did not differ significantly from the previous space policy save for the declassifying of the National Reconnaissance Office. The new directive in 1999 subtly

[87] William B. Scott, "Space Enhances War on Terrorists", *Aviation Week & Space Technology*, January 21, 2002, p. 31.

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added the proviso 'if directed' to the capability to control space, along with the exploration of the concept of space force application. The directive did not specifically announce the development of space control and space force application, merely the research and development of these concepts. The termination of the National Space Council and the dissolving of the deputy undersecretary of defence for space lowered the profile of defence space by merging the previous organisations into non-specific bureaucracies.

The profile of military space policy under the Bush Administration was raised considerably with the announcement of Donald Rumsfeld as Secretary of Defence, who was previously chairman of the Space Commission. Many of the organisational changes that were recommended by the Space Commission were implemented to increase the influence of military space within the policy making apparatus. These included the appointment of a four-star commander for Air Force Space Command, the creation of a directorate of national security space integration and a national security space architect office created. The impact these offices will have can only be beneficial to the advancement of military space issues in US military planning.

The article entitled *The Current Status of China's Military Space Program* published in Volume 27 Number 4 was erroneously attributed to James H. Hughes instead of Matthew Mowthorpe. We apologize to both Dr. Mowthorpe and Mr. Hughes.

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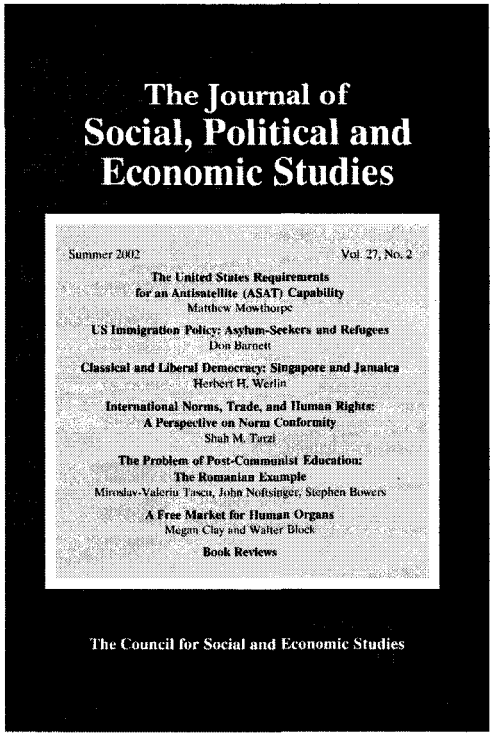

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Defending America from Offshore Missile Attack

Ambassador Henry F. Cooper
Chairman, High Frontier, Washington D.C.[1]

To build effective missile defenses, the Pentagon must overcome: 1) bureaucratic inertia from 30-years of Anti-Ballistic Missile (ABM) Treaty constraints that blocked even testing of the most effective defense concepts; and 2) given that President Bush withdrew from the ABM Treaty last June 13, the collective amnesia within the Pentagon, which ignores Strategic Defense Initiative (SDI) technical achievements of the Reagan-Bush I years. This amnesia results from the Clinton administration's purge of the most advanced SDI technology and its emphasis on making at most minor modifications to ground-based defenses permitted by the ABM Treaty rather than investing in more effective U.S. sea- space- and air-based defenses that could not even be tested under that Treaty. Such programs could be revived to field more effective defenses in the near future.

Key Words: Anti-Ballistic Missile Treaty (ABMT), Strategic Defense Initiative (SDI), Missile Defense Acts, Missile Defense Agency (MDA), light-weight, mobile defense systems, satellite constellations and space technology, space defense, sea-based defense, air-based defense, Unmanned Aerial Vehicle (UAV), Exo-atmospheric Kill Vehicle (EKV), SCUD, Standard Missile, Ballistic and cruise missile, container-ship threat, science and technology (S&T), technology demonstration.

Introduction

The Anti-Ballistic Missile (ABM) Treaty was a major inhibition to the development of numerous potentially effective defense systems. Since the Bush administration withdrew from the Treaty last June, many people involved in building defenses are having their eyes opened to that fact. For the first time in three decades, the United States can legally develop, test and deploy appropriate space, sea, air and mobile ground-based defenses. For thirty years, even testing of defenses for the United States was prohibited except for fixed ground-based systems. And permitted research on more effective defenses received only limited funding because going beyond research was banned.

President Reagan was interested in building truly effective defenses – and challenged America's scientific community to determine whether current technology would permit such defenses to be built. By the end

[1] Former Chief Negotiator at the Geneva Defense and Space Talks with the Soviet Union during the Reagan administration and SDI Director during the first Bush administration.

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of his administration, an affirmative answer emerged and the first Bush administration set out to begin deploying by the mid-1990s an effective global defense, employing all basing modes against attacking missiles of all ranges. By the end of 1992, major development programs were approved by the Pentagon's acquisition bureaucracy – and multiple contracts were issued. Concurrently, negotiations with Russia were opening the way for American engineers to move beyond the ABM Treaty constraints and build effective defenses.

When the Clinton administration commenced on January 20, 1993, these programs were quickly curtailed – the most effective technology efforts were killed outright. And our Russian friends were taken aback when the Clinton administration cancelled high level negotiations with Russia to move beyond the ABM Treaty and instead sought to "strengthen the ABM Treaty" as the "cornerstone of strategic stability" – code words for the Mutual Assured Destruction (MAD) doctrine of the Cold War.

A major problem in fielding the best defenses is that, for a decade now, there has been no serious effort to support technology for the most effective defenses – especially sea- and space-defenses. When I resigned as SDI Director in 1993, $1-2 billion/year was invested on science and technology (S&T) programs. (The overall SDI appropriations in 1991 and 1993 were $4-4.5 billion. The rest of the budget supported major defense acquisition programs.) There were major space technology demonstration programs ($300-400 million/year), as well as for other mobile basing modes. Major S&T programs sought to assure our defenses stayed ahead of likely midcourse offensive countermeasures with alternatives beyond ground-based exo-atmospheric defenses, the Clinton administration's sole focus.

The Missile Defense Acts of 1991 and 1992 gave the SDI program a Congressional mandate to deploy a ground-based U.S. homeland defense as soon as technologically feasible, and for "robust funding" to demonstrate space-based interceptors. Congress was very supportive of the Bush I theater defense programs, including to field sea-based defenses. That was the state of affairs in 1993 at the outset of the Clinton administration. A review of current Missile Defense Agency (MDA) programs would be hard pressed to find fifty million dollars

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supporting remnants of those S&T efforts.

These S&T cuts for over a decade have had a significant effect on overall Pentagon investments – the seed corn for future systems. Twenty years ago, the Pentagon's senior management assembled the SDI programs amounted to about $1.8 billion, comparable to SDI's 1993 S&T budget. So the Clinton administration's S&T investment squeeze was not just on missile defense technology; it also had a major negative impact on other related defense technology, as compared to pre-1983 investments.

Thus, the Pentagon's S&T investments in these important technologies have been markedly reduced. General Kadish, the Pentagon's MDA Director, often speaks about his missile defense programs as technology demonstrations rather than as acquisition programs. But technology demonstrations a decade ago were very different than what are today called technology demonstrations – only a very small percentage of current MDA funds is being spent to employ cutting edge technology.

The bottom line is that we need more creative thought and serious investments in innovation again. The SDI program that President Reagan started was about innovation. It was to stimulate the technical community in a focused way with effective defenses as a goal; and a lot of money was poured into research and development of the key technologies. Rather than letting policy restrictions (such as blocking S&T investments because further development was banned by the ABM Treaty) limit the consideration and advocacy of the most effective defense options, unfettered research on all viable technological possibilities became a big challenge to policy in those days – especially as the technological advances approached demonstrating significant capability.

Some current rhetoric sounds very much like the SDI debate in the 1980s – except that today General Kadish emphasizes MDA is "testing," and maybe will achieve an operational capability in the near future. That's an important step forward, because the Treaty did not permit testing of the most effective defense concepts, even when the technology was mature. While the Pentagon is taking steps forward, they're not as large as some of us would like to take – especially on sea- and space-based defenses. Indeed, SDI technology demonstrations a decade ago

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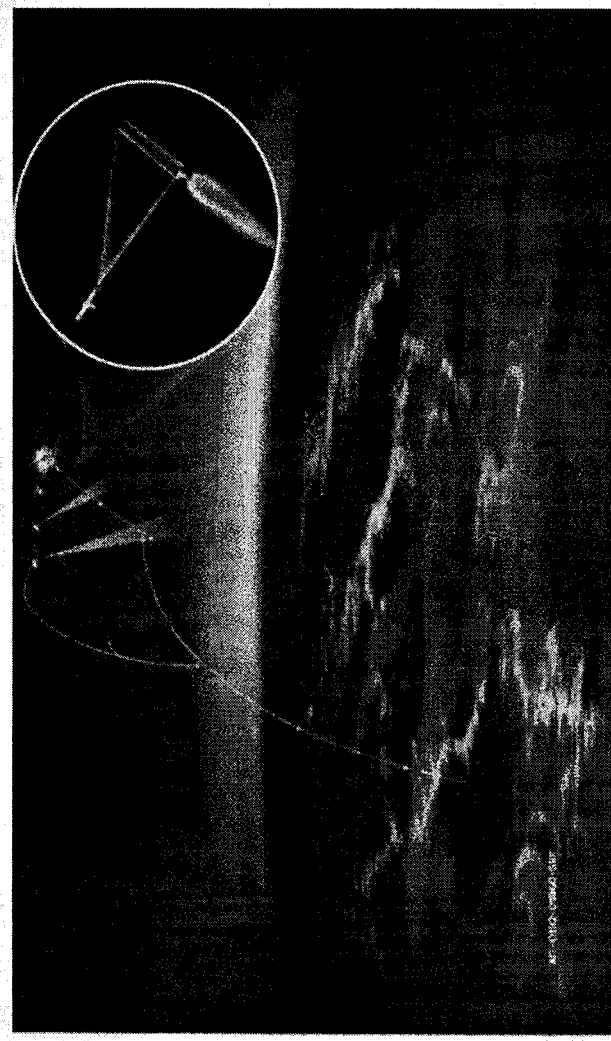
Figure 1:
Concept Demonstration Vehicle Test Configuration
(Designed to accommodate the ABM Treaty)



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were far more comprehensive.

The following section illustrates how the ABM Treaty added costs, risk and delay to SDI programs to evaluate the more effective defenses – especially space-based and sea-based defenses. Then, subsequent sections discuss the nature of a viable layered global defense and reviews how efforts of a decade ago could be revived to field rapidly a global defense today – first from the sea and then from space – to protect the United States and our overseas troops, friends and allies.

ABM Treaty Costs, Risks and Delays

Figure 1 illustrates complexities introduced by the Treaty. The Treaty banned testing of space-based interceptors, so the lawyers and technologists defined treaty-compliant experiments, leading to complicated testing arrangements. Because of this intentional complexity, the risk in doing experiments was increased. The experiment in Figure 1 involved three stages of complexity. The Treaty permitted ground-based interceptors to be tested, so this pseudo ground-based interceptor was to go up to some altitude and kick a secondary rocket up to an elevated or "lofted" trajectory; from which it could track the original booster, then track a second projectile launched from that same booster into space simulating the trajectory of a lower-altitude, long-range Ballistic missile, and then intercept it further out.

No competent engineer would test a space-based interceptor concept in this way. He would orbit an interceptor, then launch a target missile and shoot it down. If the target missile failed, a second target could be launched and intercepted from space after additional orbits. Such "Treaty-compliant" experiments were very expensive, costing hundreds of millions – much more expensive than straight-forward tests to evaluate concepts of interest. Many tests failed because of failures in launching inexpensive targets, using old, proven technology.

Another key example of the ABM Treaty costs and delays concerns the constraints on testing effective sea-based defenses. I remember having conversations with Admiral Kelso when he was the Chief of Naval Operations, as we were initiating the sea-based programs in 1991. (Prior to my watch as SDI Director, Navy missile defense programs were not considered seriously.) We talked about the important role sea-based

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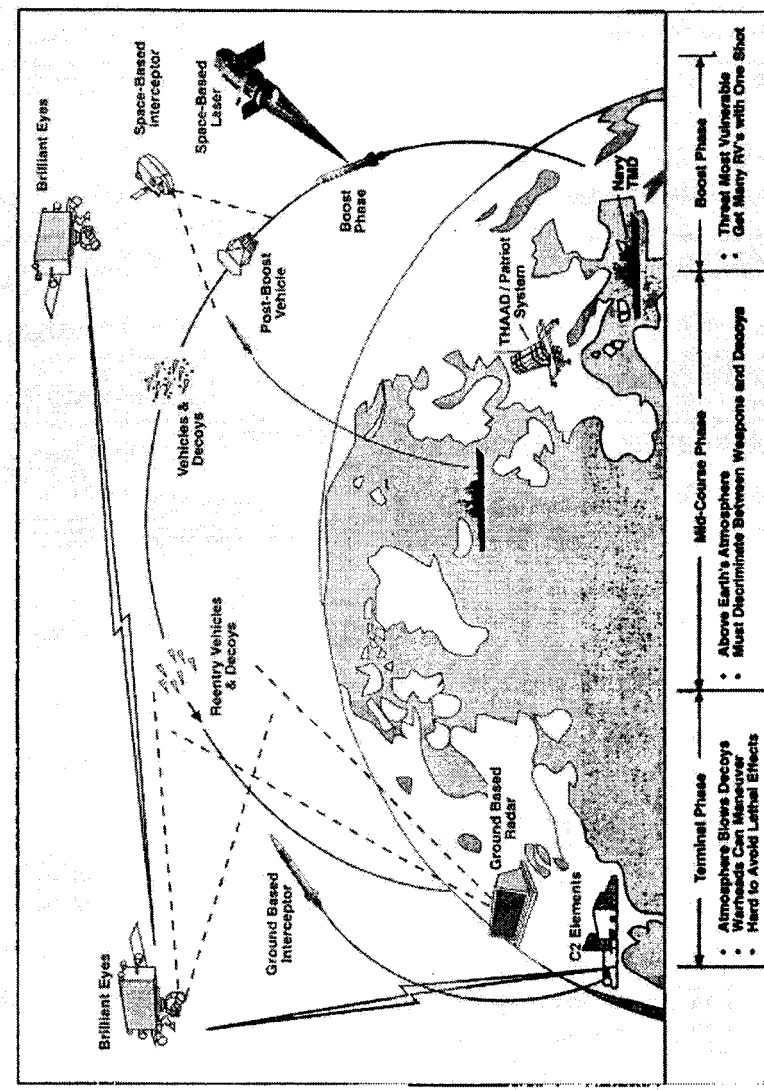

Figure 2: Basic Missile Defense Elements

(From 1995 Heritage Foundation Team B report, Defending America: A Near and Long-Term to Deploy Missile defenses)

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defenses could play, and the fact that a serious Navy program to defend the fleet could be a desirable stepping stone to defending the United States – but that we had to be extremely careful not to cross the ABM Treaty line banning even the testing of sea-based defenses of the U.S. homeland – if we did, the Treaty lawyers would stop the entire program cold.

With this caution, a serious sea-based defense program was initiated and fully funded to provide a wide-area regional defense capability by the mid-1990s, had it been continued as planned. And that capability could easily have been extended to become a significant component of a U.S. homeland defense, once the ABM Treaty was modified or preferably ended.

But the Clinton administration curtailed the program they inherited in 1993, no doubt because of Treaty considerations. By 1995 when, after over a dozen critical reviews – all of which gave positive recommendations to continue such a program – and under pressure from the Congress which strongly supported the Navy programs, the Clinton Pentagon finally approved some Navy programs as being Treaty-compliant. But the key Navy Theater Wide (NTW) system was "dumbed-down" in several ways:

- The NTW interceptors were slowed from 4.5 to about 3 kilometers-per-second, markedly reducing the area protected as will be discussed shortly.
- The full complement of sensors on board the interceptor was degraded to insure that it would not have capability against a modern warhead and decoys in midcourse. (Such a weapon might be a threat to the U.S. but supposedly it would not be a threat to our troops abroad.)
- The sea-based interceptor system was further constrained to use only radar co-located with a given ship's interceptors – so these interceptors could not exploit fully their velocity, since the ship

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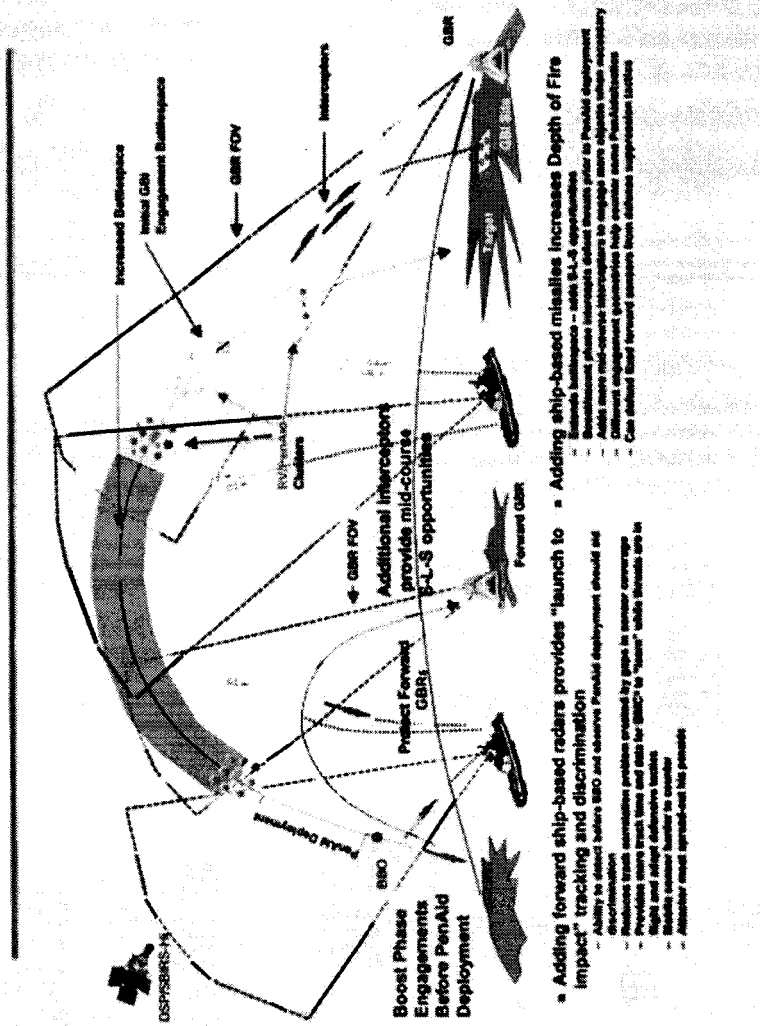
Figure 3: Sea-Based Defenses



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couldn't see beyond the horizon with its radar. The capability to shoot down cruise missiles beyond the range of the Aegis' SPY-1 radar has been demonstrated by using the Navy's Cooperative Engagement Concept to internet with sensors based elsewhere – straightforward extension of that capability could be used to intercept Ballistic missiles. But that might permit the system to protect the U.S. homeland, and so it was forbidden.

- The most ludicrous constraint was a firing protocol that blocked launch of an interceptor until after its target rocket burned out. If, for example, a ship was in the Sea of Japan and a rocket flew overhead from North Korea toward Hawaii, the Captain couldn't shoot at it until his 3 kilometers-a-second interceptor was in a tail chase behind a 7 kilometers-a-second rocket – without a chance to catch up. But it could shoot down a slower, shorter-range missile headed to Japan. So we had a sea-based defense we could proceed with under the terms of the Treaty; even if it could not defend the United States, it could defend Japan – and our overseas troops, friends and allies.

The above list of constraints on NTW developments illustrate how engineers rise to the occasion when presented with a substantial challenge, like fielding a theater missile defense to protect the fleet and our overseas allies and friends, as was permitted by the Treaty, without it having some inherent capability to defend Americans at home. Consequently, sea-based defense systems were considered only at the margins during the last decade, and most certainly not developed to be all they can be from a technical perspective.

Fielding an Effective Global Defense

President Bush has indicated he wishes to field effective defenses to protect the American people as well as our overseas troops, friends and allies – and he has taken the important enabling step of ridding the development process of the inhibitions of the ABM Treaty. Now that the legal impedance is reduced, it will be important to adopt an architecture for an effective global defense – one that accommodates the fact that threatening missiles could be launched from many countries (or from the sea) to threaten Americans at or our interests and citizens

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abroad. This was precisely the focus of the SDI program that was abandoned by the Clinton administration in 1993.

Figure 2 adapts a figure from a 1992 Report to Congress on Brilliant Pebbles, which described that space-based interceptor component of the "Global Protection Against Limited Strikes," or GPALS, layered defense concept designed to intercept rockets launched from anywhere on Earth to attack areas of U.S. national security interests – at home and abroad. The architecture was for a layered defense – beginning in boost-phase, as threatening rockets rise from their launchers, and extending through the midcourse-phase in outer space into the reentry/terminal phase as the warheads approach their intended targets.

If the rockets are destroyed in their boost-phase, all the warheads and decoys are destroyed before they can be dispersed – if intercepted early enough, then the junk falls back on unfriendly territory. The key challenge for the defense is the very short time permitted for launching interceptors – a few minutes at most.

The much longer mid-course phase confronts a potentially daunting discrimination problem: how to distinguish warheads from numerous lightweight decoys. Later, in the reentry/terminal phase, as the atmosphere decelerates light-weight decoys away from the warheads as they descend toward their targets, the possibility of maneuvering warheads becomes a significant problem for the defense.

Several key programs to implement a global defense should be reinstated, now free of ABM Treaty inhibitions. Because there has been a serious development program for sea-based defenses against short and medium range missiles – albeit delayed and constrained as discussed above, sea-based global defense can be made operational earliest and then improved. This initial global defense capability can be complemented quickly with space-based and air-based interceptors, provided those programs are rapidly revived and fully funded.

Sea-Based Interceptors

In Figure 3, the target rocket is launched from the left, and a sea-based interceptor could be close enough to hit it in boost-phase before warheads and decoys are deployed. Ships further away could intercept attacking warheads throughout the midcourse phase (provided the

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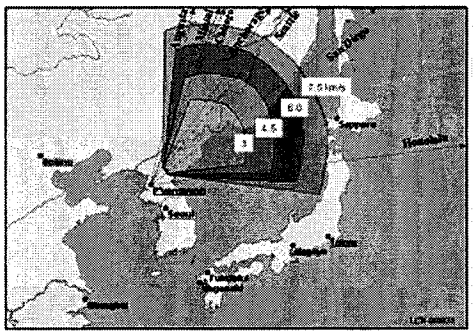
Figure 4: Launch Areas for Ascent-Phase Intercept

(From "The Earliest Deployment Option" by Henry F. Cooper and J.D. Williams
Published in the September 6, 2002 Issue of *Inside Missile Defense*)



- Taepo Dong Launch
- Interceptor Launch – 50 sec
- Trajectory toward San Diego – Rotate "fan" for other U.S. cities
- **Conclusions**
  - Near North Korean coast, even 3 km/sec interceptors have limited capability to protect West Coast – over 6 km/sec required for all U.S.
  - Slowest interceptors would have some boost-phase opportunities against missiles toward Hawaii and parts of West Coast
  - Best coverage by 2 cruisers

Recommended Strategy

- Build what we have = ~3km/sec
- Make block improvements:
  - Light-weight KV = ~5 km/sec
  - New KV + VLS-compatible new Standard Missile = ~7 km/sec

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warheads can be discriminated from decoys) and into the terminal phase.

Note that U.S.-based ground-based interceptors would be limited to intercept late in the post-apogee flight of the target missile. The shaded region in Figure 3 represents the extension of the attacking missile's trajectory where sea-based defenses can add capability.

A sea-based defense could be fielded rapidly, largely because we have already invested about sixty billion dollars in the Aegis system and the standard missile that goes with it. It could be rapidly modified to provide a beginning capability and then be improved later. This approach was the subject of a September 2000 paper by Retired Vice Admiral J.D. Williams and the author. We argued that if the Treaty constraints were removed and the Navy were given $2-3 billion more than then planned for the Navy Theater Wide system, it could begin operating an early defense of the U.S. homeland within 3-4 years – and that capability could be later improved.

Figure 4, from our September 2000 paper, illustrates the importance of the interceptor velocity. An interceptor launched from a ship anywhere in a given "fan" can reach a missile on the "centerline" trajectory to San Diego. For an interceptor traveling 3 kilometers-a-second, a ship near the Korean coast within this velocity fan would have a shot – an achievable capability with current technology.

The Clinton administration's reduction from 4.5 to 3 kilometers-a-second, as mentioned above, was significant: Figure 4 shows factor of two reduction in a ship's effective operational area.

The 4.5 kilometers-a-second capability could be recovered with a new 21-inch diameter Standard Missile booster, the SM-4. Alternately, a lighter kill vehicle, based on Brilliant Pebbles technology tested a decade ago (See the following section.), on the front end of the current Standard Missile (SM-3) booster, could also increase its velocity to at least 4.5 kilometers-a-second – and possibly 7.5 kilometers-a-second. A new booster coupled with a lighter kill vehicle based on decade old technology could increase the interceptor velocity to 7.5 kilometers-per-second. None of this is new physics; it follows from work done a decade ago.

The operating area increases significantly as the interceptor velocity

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increases. The 7.5 kilometer-a-second fan extending from Honolulu to Augusta, Maine covers the entire United States. So if Maine is to be protected from a launch out of Korea, the centerline of this fan would swing up north and the ship-based launcher would have to be very near the coast, even with high-velocity interceptors.

The Missile Defense Agency (MDA) has finally concluded that high velocity sea-based interceptors are needed. But MDA proposes a less than optimum approach – to build a new, big interceptor, larger than the Navy's 21-inch diameter Standard Missile, the largest size that will fit in the Vertical Launch System (VLS) already deployed around the world. This approach will foster an extensive program to build a new missile and a new VLS – and an expensive retrofit program to the Navy's fleet.

A better alternative is to use the existing 21-inch Standard Missile interceptor, empowered by 1992 SDI technology held dormant for a decade, to reach the outer limits on the 7.5-kilometer-a-second velocity fan in Figure 4.

It is important to return to that light-weight technology to maintain flexibility for the Navy – the missile defense interceptor will then fit into the same launch tube as a Tomahawk cruise missile and the Navy's air-defense standard missile today. At most, a defensive interceptor would displace a round that was there for some other reason. And if the architecture fully exploits sensors that are off-board from the ships where interceptors are located, then many ships with existing VLS modules can be used to launch defensive interceptors, including our cruisers and destroyers and ships that belong to the Japanese and other allies around the world, some of whom are very interested in obtaining such a sea-based defense.

Thus, there is a significant policy advantage in obtaining a light-weight interceptor that is compatible with the existing Navy infrastructure. A lot of money can be saved because no major modifications would be required. A 31-inch interceptor, apparently preferred by the Pentagon to accommodate heavy "kill vehicle" payloads, would require a new VLS, leading to dedicated missile defense ships probably in a picket sensing and control capability.

A decade ago, SDI built upon the prior decade's investments in developing light-weight propulsion units, sensors, computers, and other

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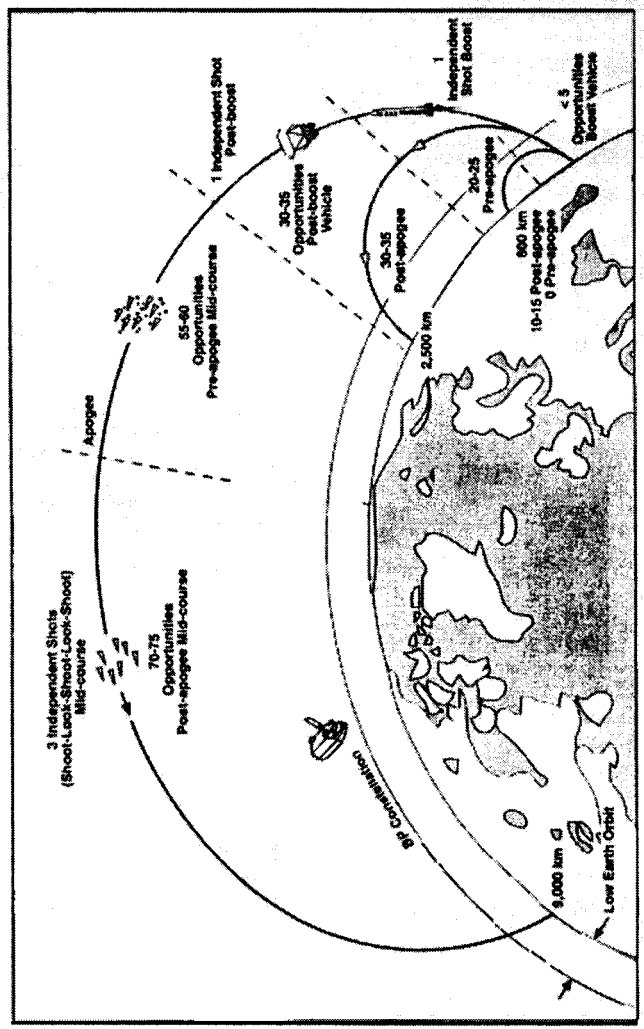
Figure 5: 1,000 Space-Based Interceptors Have Many Shot Opportunities

(From SDIO March 1992 Report to Congress: Conceptual and Burden Sharing Issues Related to Space-Based Defense Interceptors)



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components of an advanced kill vehicle. The Brilliant Pebble space-based interceptor was the preeminent outcome of the development between 1983 and 1993. That program was killed outright at the beginning of the Clinton administration – Defense Secretary Les Aspin said he was "taking the stars out of Star Wars." And when they killed Brilliant Pebbles, they also put an end to all efforts that emphasized light-weight, highly capable kill vehicles. So now Pentagon programs are living with the legacy of a decade where there was no such emphasis, and the powers-that-be appear to have collective amnesia about what the SDI program had created between 1983 and 1993.

The misperception that the current approach is the best we can do is widespread. Appended to this paper is my July 31, 2000, letter to Senator Warner and other Congressional leaders, prompted by Defense Secretary Cohen's testimony before the Senate Armed Services Committee that the Bush I administration had, on its own, decided to build ground-based defenses rather than space-based defenses because, he incorrectly alleged, ground-based technology was more advanced. Nothing could have been further from the truth; in 1992, technology was far more advanced for space defenses.

The first SDI program to be accepted by the Pentagon's acquisition bureaucracy as a formal acquisition program was the Brilliant Pebbles space-based interceptor program, not a ground-based interceptor program. The ground-based defenses were at least a year behind at that time. So I thought it was important to set the record straight.

The Pebbles operated autonomously; they required no cue from the high altitude warning satellite – the Defense Support Program, or SIBRS-High, as its follow-on is called. The Pebbles could operate autonomously because each carried the equivalent of a Cray-1 computer on-board and could do its own calculations for trajectory and targeting analysis.

Each Pebble had its own sensors for navigation purposes to determine its location and the locations of its neighbors; it knew the algorithms its neighbors would use to calculate intercept options; it could see attacking missiles in its field of view and calculate a good approximation of what its neighbors saw. So each Pebble could decide whether it had a better opportunity against a given target than its

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Figure 6: Key Features of Brilliant Pebbles Space Vehicles - Contractor Perspective

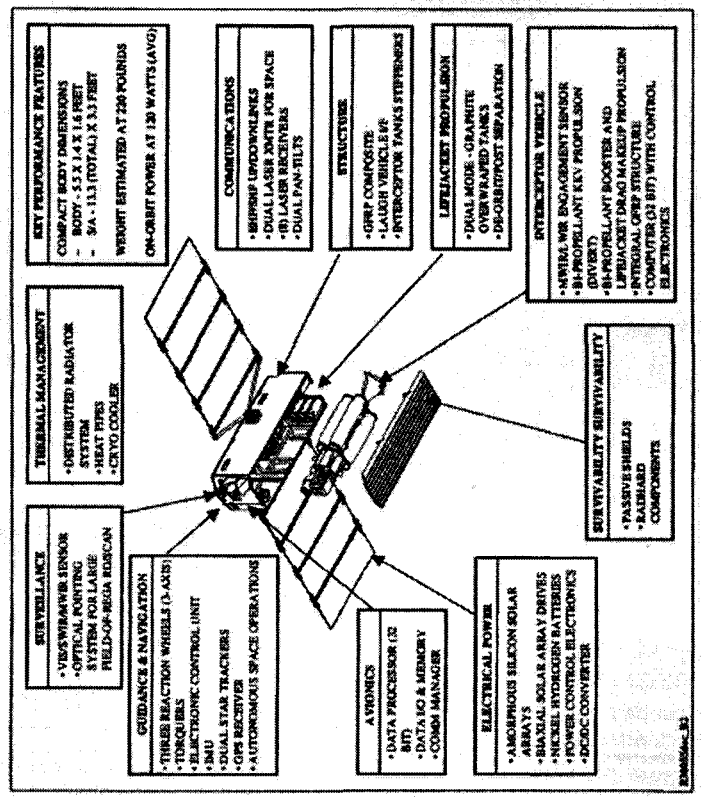

Image Courtesy of TRW

- Detailed Contractor designs were developed during the BP pre-EMD program
- All of the required subsystems were examined for both the microSat Lifejacket and the light weight KKV
- Technology advances during the last decade offer :
  - Lower mass
  - Lower cost
  - Higher performance
- No show stoppers or technology limitations found

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neighbors. Whichever Pebble went first would shout to the rest, "I'm taking this one."

This complete devolution of authority to designate targets is only marginally less efficient than an all-powerful, centralized, perfect battle management system, a fact shown by SDI's 1986 Eastport study. I fear that important lesson has been forgotten and needs to be relearned by those again thinking about global defenses. For the last decade, we focused on specific missions and defense programs rather than a global architecture.

Figure 6 is a TRW chart from a recent study that summarized where space-based interceptor technology is now and where it was a decade ago. TRW was one of two contractors performing the formally approved Brilliant Pebbles acquisition program; Martin Marietta was the other. TRW and Martin-Marietta had fully approved designs.

Figure 6 notes that the technology advances in the last decade permit less mass, lower cost and higher performance. The Brilliant Pebbles technology was pretty good a decade ago. The CAIG-approved cost estimate for the Pebble constellation, including for 20-years operation, was $11 billion in 1989 dollars – substantially less than the expected cost of a land-based site in Alaska. That estimate included placing a thousand Pebbles on-station, and replacing each once – i.e., for 2,000 operational Pebbles, including launch, on-orbit operations, and associated ground operations. The system was expected to have very high probability of destroying all of up to 200 attacking warheads.

Almost all of the Brilliant Pebbles hardware and software was space-qualified on the 1994 Clementine mission to the Moon. The origin of that important program also provides an anecdote illustrating a key policy and technology interface. During a hearing with the Senate Armed Services Committee in 1992, Chairman Sam Nunn arrived late after my testimony and exchanges with other committee members. He attacked my support for Brilliant Pebbles and made it very clear to me that he intended to kill the associated technology demonstration program – even though Congress, under his leadership, had agreed the preceding year to provide robust funding for continuing the program.

When I got back to my office after this hearing, I called in Colonel (now Brigadier General) Pete Worden, who was my technology deputy,

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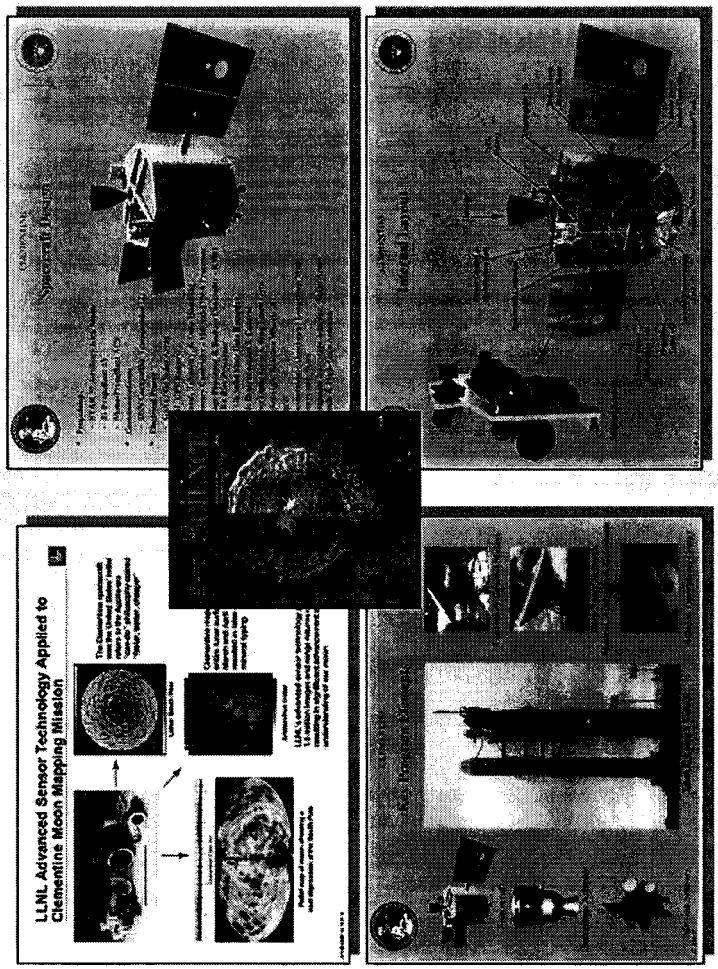
Figure 7: The Clementine Mission Space Qualified Brilliant Pebbles Interceptor Components



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and Colonel Rhip Worrell, who ran the Pebbles program, and said: "I want to invent a program that will pass muster with our arch opponents (in particular, opponents of space-based interceptors) and provide a safety net for Pebbles technology."

So was Clementine conceived (Figure 7). The Naval Research Laboratory provided the spacecraft and overall system integration, and Lawrence Livermore National Laboratory provided the sensors, propulsion and computers, etc., using hardware scavenged from the Brilliant Pebbles demonstration programs that Livermore was then leading. The mission was to return to the Moon and map its surface and then to fly-by the Earth on the return trip and slingshot by an asteroid into deep space, where it would be "lost and gone forever," hence the name Clementine.

Without going into details, the Clementine spacecraft didn't photograph the asteroid, but it greatly exceeded the expectations of many people just by returning to the Moon for the first time in 25-years. It

FIGURE 8: CLEMENTINE TESTED MANY NEW TECHNOLOGIES.

- WFOV Star Tracker (LLNL, OCA)
- UV/Visible Camera (LLNL, OCA)
- Laser Radar (LLNL, OCA)
- Laser Transmitter – two color (MDC)
- Image intensified camera (LLNL, GA)
- MWIR camera (Amber, OCA)
- LWIR camera (Fermionics, Amber, OCA)
- RLG and IFOG IMU (Honeywell, Litton)
- RISC computer (LLNL)
- NiH2 battery
- Reaction wheels (Ball Aerospace)
- GaAs/Ge solar panels
- Baffles (LLNL)
- Stirling cryocoolers (Rycor)
- Plastic electronic components
- Gen III image intensifier (GA)
- Surface mount electronics
- Composite spacecraft structure (NRL)
- Non pyro separation bolts
- Programmable jpeg chip (CSA)
- 2 GB on board memory storage
- EDAC memory
- On-orbit EPROM burn
- Advanced ground control (NRL)
- Star tracker software demonstration
- On board image processing software tests
- Real time operating system
- Pulsed bi-prop propulsion tests
- Autonomous control
- Automated ground processing
- Internet distribution of images

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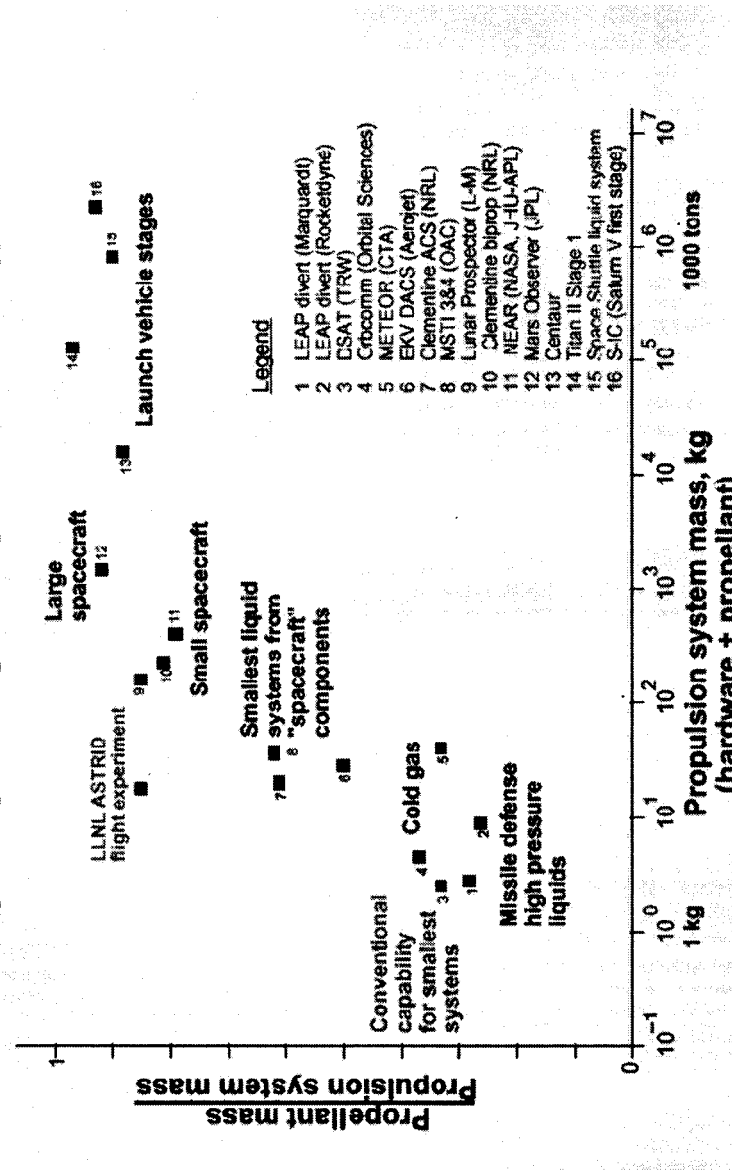
Figure 9: LLNL Astrid Experiment Demonstrated the Lightweight Pumped Propulsion Technology



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mapped the Moon's surface in over 1.7 million frames of data in 15 spectral bands. It delivered more data than the entire Apollo program, and the cost of the entire program, from the day it was conceived in my office to liftoff, which was less than two years later, was about $80 million.

Clementine was the first demonstration of the "faster-better-cheaper" approach to deep space exploration about which NASA Administrator Dan Golden often spoke. The small Clementine team won awards from NASA and the National Academy of Sciences. An entire issue of *Science* magazine was devoted to the results of the surveys, including the discovery of water at the South Pole as was confirmed on a later flight to the Moon. It was an extraordinary success, and a replica now hangs in a place of honor in the Smithsonian.

Someone said, "No good deed goes unpunished." Because the technical community loved it, Congress supported a follow-on mission to go to a deep-space asteroid and finish the job – using even more advanced technology than employed in the first Clementine mission. But President Clinton exercised his fleeting line-item veto in September 1997 to kill the program. Bob Bell, who was then President Clinton's assistant on arms control matters, said the veto was because of the follow-on's SDI heritage and the "Star Wars" technology on which it was based. Nevertheless, the by-product of the first successful mission to the Moon was to space-qualify the first generation Brilliant Pebbles technologies, as summarized in Figure 8.

Lawrence Livermore National Laboratories and a number of contractor/industrial teams provided key inputs. The Naval Research Laboratory was the spacecraft integrator and Livermore was responsible for the sensor technologies and key software that were space-qualified as basic Pebbles elements.

So Clementine was an integrated experiment and proved out the technologies for everything except the miniature propulsion elements for the space interceptor, and that was demonstrated later in 1994 by an Astrid launch, included at the top left in Figure 9. A high ratio of propellant mass to propulsion mass implies a very efficient booster, as for most very heavy space launchers – numbers 15 and 16 are the Space

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Shuttle and Saturn 5. For smaller rockets, generally in the lower left portion of the chart, most small interceptor payloads carry "extra" mass, in a relative sense, and require much more fuel. Number 6 is the ground-based EKV, about half the way up to where the 1994 Astrid test demonstrated Pebbles technology. This test completed space qualification of first generation Pebbles technology – in these terms, more advanced than technology currently being employed.

Figure 10 illustrates features of the Iridium communications system, which employed and proved technology and concepts common to Brilliant Pebbles. That was one of several communication satellite systems that were initiated to build low-earth or medium-earth orbit communications systems for profit. Iridium involved sixty-six satellites in earth orbit, roughly the Brilliant Eyes constellation of the Bush I SDI era. Iridium was built with private money, a fair portion of which came from the Middle East. The developers made a gross miscalculation from a business point of view; the company essentially went out of business because they couldn't make money, and they sold a perfectly good satellite communication system to the Pentagon which is now using this system quite effectively. It is probably the Pentagon's most effective acquisition program: a $5 billion system purchased for pennies on the dollar, deployed in under five years and operating, as far as I know, just fine.

Bill Gates and Craig McCaw in their Teledysic effort initially planned a Pebbles-size constellation of over 800 satellites, and then down-scoped to 250 or so satellites in higher orbit. But after Iridium failed as a business venture, they backed off. I don't know Teledysic's status, but both of these systems used operational concepts planned to manage the Brilliant Pebbles constellation.

Notice that fewer than six individuals operate Iridium. At Air Force Space Command in Colorado Springs, a standing army of ground troops operate our military space systems. So this streamlined operation is the wave of the future – and there is a good case that industry caught the wind from Brilliant Pebbles. It is not clear the Pentagon has yet learned how to build and operate a large constellation of small, agile satellites.

The whole point is that there is mature technology for building light-weight space-based kill vehicles and deploying them in an effective

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Figure 10: Motorola's Iridium Global Communications System Example of a Distributed Constellation

- Motorola's ill-fated Iridium constellation, though not very successful as a global cell phone system proved out assembly line satellite construction and automated on-orbit management concepts that originated in the BP program ---~$5 billion for Development and deployment
- Iridium operated a complex space-based constellation with a very small team(< 6) of satellite operators using highly automated expert system control software
  - System included cross-links and the ability to hand-off phone calls from one spacecraft to the next, which required the knowledge of all platform locations and attitudes

Iridium Constellation 6 rings x 11 platforms

Iridium Cell Phone RF Footprints

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constellation; it was available a decade ago. The same technology can be used for other basing modes – notably to enable a VLS compatible high velocity Navy theater wide interceptor, as discussed in the previous section.

The Pentagon took a different path in 1993 and reviving this important space-based system concept may not be easy, given the Pentagon's normal bureaucratic tendencies. In any case, that innovative path should be resumed for policy reasons, both to build space-based interceptors and to enable better interceptors based in other ways, especially at sea.

Near Term Defense against Scuds on Ships

Apart from the threat to America from long-range inter-continental missiles, there is also a threat from Ballistic missiles fired from ships close to the U.S. coasts. Donald Rumsfeld's commission on the missile consider other things that can be done off-the-coast before a potential threat gets in close. Still, it is pretty clear that as hard as we may work, we will never be absolutely persuaded that we've solved the problem. In the final analysis, it will be very helpful to have an active defense against this kind of stand-off threat, whether it involves cruise missiles or Ballistic missiles. This is not to argue that we shouldn't be worrying about ships that can bring weapons of mass destruction all the way into our ports. We have spent, and I am sure we will continue to spend, a lot of money on that problem. My point is that we should also work on the missile defense problem, illustrated by the trajectories in Figure 11.

This chart illustrates the variety of missile threats, for example, the old SCUD with a range of 300 km and the SCUD with a range of 600 km that was used by Saddam Hussein a decade ago in the Gulf War. In the chart you can see the range of the various defenses we have: Hawk, PAC 3, etc. We don't get out very far and by the time you intercept, if you can, you're intercepting missiles that are coming in on top of you. The Israeli Arrow missile goes out 75 km, and by the way, I think the Arrow puts us to shame; it is now operational at a cost of less than 2 billion dollars, most of which we Americans paid. It is not the fanciest technology, but it is operational. Our Theater High Altitude Area Defense (THAAD) development started at the same time but it now is projected to have an initial operating capability (IOC) in 2006 or 2007.

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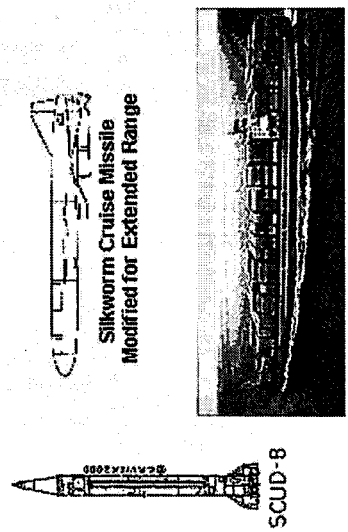
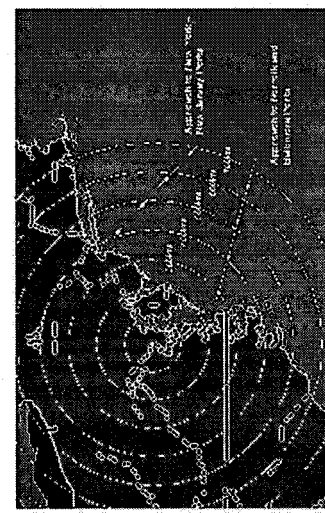
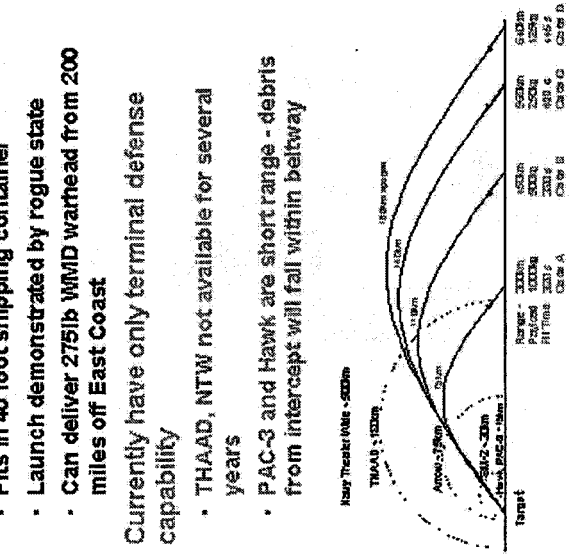
Figure 11: Missile Launch Scenario

- SCUD-B or Cruise Missile Launch on Washington, DC
  - Fits in 40 foot shipping container
  - Launch demonstrated by rogue state
  - Can deliver 275lb WMD warhead from 200 miles off East Coast
- Currently have only terminal defense capability
  - THAAD, NTW not available for several years
  - PAC-3 and Hawk are short range - debris from intercept will fall within beltway







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THAAD will be more capable when we get it, but today we've got nothing. The Navy Theater Wide defense will be more capable than THAAD and we can have it sooner for a lot less money, now that the Treaty is gone. On the right hand side of Figure 11 are indicated distances from Washington, D.C. Imagine where our ships would have to operate, bearing in mind the twelve-mile limit. There is an economic zone that goes out about 200 miles, but as I understand the legal constraints, they are not likely to keep traffic outside of the 200-mile limit. Any SCUD-launcher capability that gets within 100 miles of the coast is a potential threat that we may need to counter. Cruise missiles are also a threat, but I am here talking about Ballistic missiles.

Figure 12 shows the calculations of defensive coverage the Navy Theater Wide kinematic capability could provide. This chart is actually a little optimistic, because I don't believe Navy Theater Wide has a 3.5 kilometers-per-second interceptor. The figure indicates those intercepts up to a fifty to sixty kilometers altitude and those up to ninety kilometers altitude (against the 600 km-range SCUD). This is the area that could be covered with intercept capability in the ascent phase and beyond the defense threat issued a bipartisan report that identified this offshore problem as an already-existing threat in 1998. Furthermore, in a Pentagon press briefing on September 16, 2002, Defense Secretary Rumsfeld reiterated this conclusion: "Countries have placed Ballistic missiles in ships – dime a dozen – all over the world. At any given time, there's any number off our coasts – coming, going. On transporter-erector-launchers, they simply erect it, fire off a Ballistic missile, put it down, cover it up. Their radar signature's not any different than 50 others in close proximity."

This comment was well taken, a statement of the obvious that countries can launch Ballistic missiles from ships. We launched SCUDs from ships in the 1947; other countries have recently repeated that feat, according to Deputy Defense Secretary Paul Wolfowitz. The transporter-launcher for a SCUD can be hidden on a container ship and, as Secretary Rumsfeld said, can erect, fire off a Ballistic missile, lower and cover-up. Some details about guidance and other conditions have to be worked to assure a SCUD can hit a city, but with weapons of mass destruction, that's not as challenging a problem as it would be to

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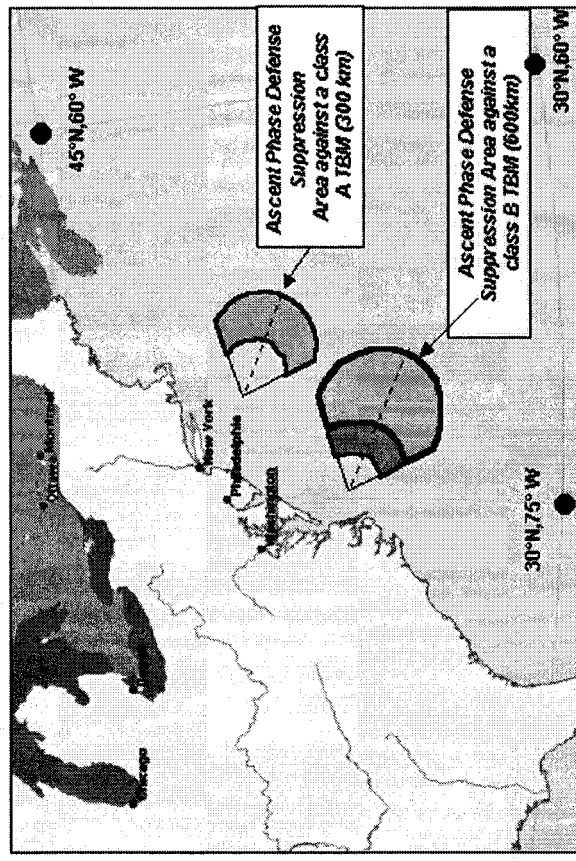
Figure 12: Potential Sea-Based TBM Launch Suppression Footprint for Coastal Defense (3.5 Vbo interceptor)



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accomplish a military task.

To emphasize the problem that this threat poses, consider that something like five million containers come into our ports each year, something on the order of 16,000-a-day. To inspect all of those containers is not feasible – in fact, only a very small percentage is currently inspected. And even if they could all be inspected at entering ports, it would likely be too late since the missiles could be launched before the ships arrive in our ports. So the real defense against this threat has to go to the ports of origin, and to consider other ways to intercept the ships off-the-coast before a potential threat gets close.

It should be understood that even if we know Ballistic missiles are being carried toward us by various ships, we may not be able to stop them before they come close enough to threaten our coastal cities. Last December, we boarded a North Korean ship delivering 15 SCUD missiles to Yemen (a country that has fostered terrorism) and then permitted them to continue – because, as a White House spokesman said, the U.S. "had no alternative but to obey international law."

It seems clear that, as hard as we may try, we will never be persuaded that we've solved the problem of preventing all scenarios involving a close approach of ships that could launch short-to-medium-range missiles at our coastal cities. In the final analysis, it will be very helpful to have an active defense against this kind of stand-off threat, whether from cruise or Ballistic missiles. This is not to argue that we shouldn't be worrying about ships that can bring weapons of mass destruction all the way into our ports. The U.S. has spent, and will continue to spend, a lot of money on that problem. But we should also work on the missile defense problem, illustrated by the trajectories in Figure 11.

This chart illustrates a variety of missile threats, for example, the old SCUD with a range of 300 km and the SCUD with a range of 600 km that was used by Saddam Hussein a decade ago in the Gulf War. In the chart you can see the range of the various defenses: Hawk, PAC 3, etc. They can't intercept missiles very far away – and successful intercepts occur as the attacking missiles are coming in on top of their targets.

The Israeli Arrow missile goes out 75 kilometers – substantially further than any U.S. operational system. And by the way, Arrow puts

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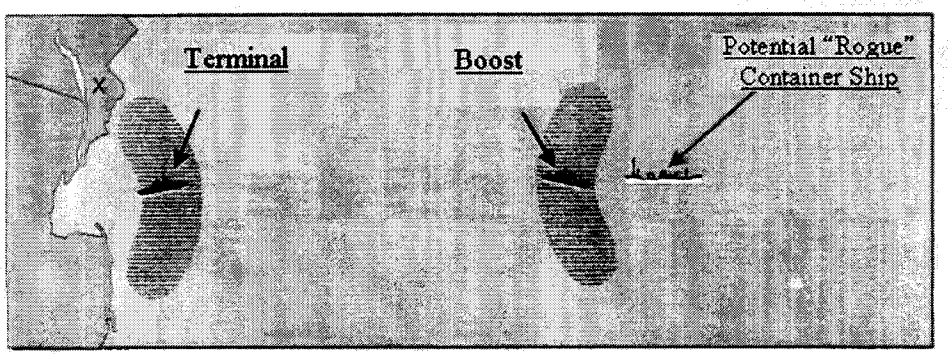
Figure 13: Early Limited Sea-based Defense with SM-2 Block IV



Assumptions

- Threat class: 300km
- Boost ship: ~20km operational area from container ship
- Terminal ship: ~15km operational area from impact point
- Minor mods - $100-$200 million/12 months

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us to shame; it is now operational at a cost of less than 2 billion dollars, most of which we Americans paid. Arrow does not use the fanciest technology, but it is operational. Our Theater High Altitude Area Defense (THAAD) development started at the same time but it now is projected to have an initial operating capability (IOC) in 2006 or 2007 and will cost an order of magnitude more than Arrow. THAAD will be more capable when we get it, but today we've got nothing beyond Patriot.

The Navy Theater Wide defense will be more capable than THAAD, and it can be made operational sooner for a lot less money, now that the Treaty restraints on sea-based defenses have been removed. On the right hand side of Figure 11 are indicated distances from Washington, D.C.. Imagine where our ships would have to operate to intercept such threat missiles, bearing in mind the twelve-mile limit. There is an economic zone out to about 200 miles, but as I understand the legal constraints, they are not likely to keep traffic outside of the 200-mile limit. Any SCUD-launcher capability that gets within 100 miles of the coast is a potential threat that we may need to counter. Cruise missiles are also a threat, but the subject threat is Ballistic missiles.

Figure 12 shows the calculations of defensive coverage the Navy Theater Wide kinematic capability could provide. This chart is a little optimistic, because Navy Theater Wide velocity is currently somewhat less than 3.5 kilometers-per-second. The figure indicates those intercepts up to a fifty to sixty kilometers altitude (against a 300 kilometer-range SCUD) and those up to ninety kilometers altitude (against the 600 km-range SCUD).

This is the area that a ship could protect with intercept capability in the ascent phase. So if the discrimination problem can be solved, a ship or two moving in this area or near the coast – perhaps even while in port – could provide a coastal defense capability.

That such a concept is feasible was illustrated last November 22, when the Navy made it three hits in a row with its Theater Navy Wide interceptor – this time it hit its target rocket in its ascent phase. Navy Theater Wide boost-phase intercepts are also possible; however, the ship must be very close to the launch of the threatening missile – say, within only about twenty-five kilometers.

The threat could come from several hundred kilometers off shore.

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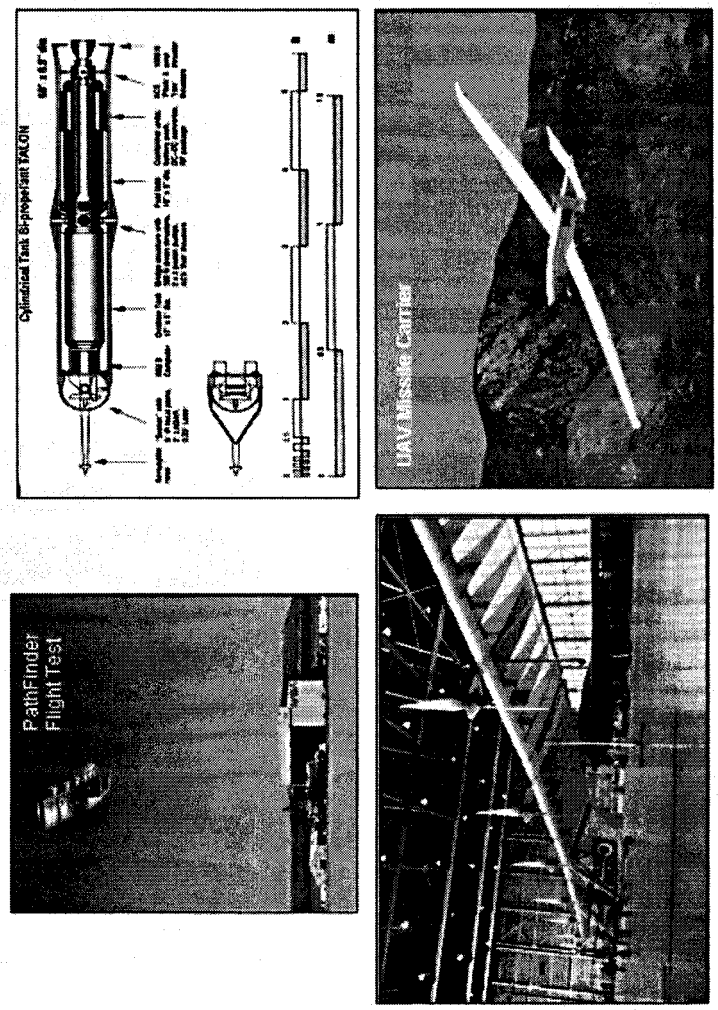

Figure 14: Raptor/Talon UAV Boost Phase Intercept Program

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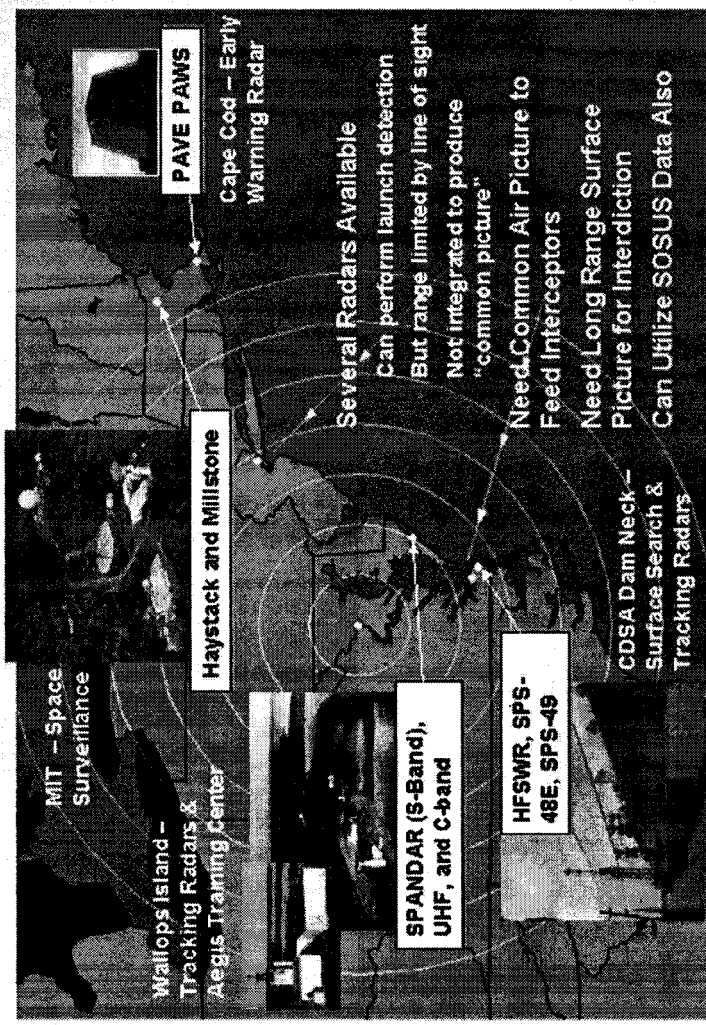
Figure 15: East Coast Sensor Coverage
(Basis for East Coast Test Range – Targets Launch from Wallops)



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So if a ship were trying to hit an incoming missile in boost phase, it would have to operate near the apex of the fan in Figure 12, very close to the threatening container ship. The small area presents a major operational problem, even for a high-velocity interceptor. That higher velocity capability is two-to-three years away.

A question is whether something could be made operational sooner. A couple of years ago, Rear Admiral Rod Rempt made some interesting studies of quickly achieving a very limited boost-phase defense using the Standard Missile-2 Block IV, which is a Navy air defense missile. (See Figure 13.) We have about 60 of these air defense interceptors, but no active production line.

The Bush administration made a serious error, in my judgment, in canceling the Navy Area defense, which would have improved this interceptor. But we do have sixty; and they can be made operational on a linebacker cruiser, one of the ships used in recent successful tests. The assertion is that we can intercept a boosting Ballistic missile with this air-defense missile, with a fragmentation warhead like Patriot's, not a hit-to-kill warhead.

In principle, this technology has not advanced much since the 1960s. But it was good enough then, in a demonstration context, to destroy boosting rockets using a predecessor to the standard missile. So, if the radar software were modified, it could hit nearby missiles in boost phase, say, within twenty kilometers of the container ship from which they are launched. Required would be some way to identify and track the right container ship, and an operational concept to deal with the entire problem, involving, presumably, the Navy, the Coast Guard, various sensors netted together, and tracking procedures that go back as far as the originating port to identify suspicious ships.

But it is plausible that with today's air-defense missile, with modifications to the radar software, at a cost of $100-200 million, the Navy could have such an operational capability within a year. It would not be a very good defense but it is better than no defense, at least nothing beyond Patriot. Someone should seriously look at this option, which could also provide a limited terminal defense.

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Boost Phase Interept From UAVS

The "container ship" threat could also be countered with another technology that was being pursued a decade ago to provide in the near term an ability to intercept attacking short-to-medium-range missiles in their boost phase from an unmanned aerial vehicle (UAV). The SDI version was called Raptor-Talon: Raptor was the UAV and Talon was the airborne interceptor, based on the light-weight Brilliant Pebbles technology.

The "Pathfinder" illustrated in Figure 14 is an originally SDI-developed solar-powered UAV that charges its batteries during the day and runs off the batteries at night – so it can stay up for extended periods. In 1993, it was transferred to NASA, where it has been setting altitude records: 65,000 feet in normal operation and 100,000 feet for one of the modifications. It can carry about 100 kilograms, again not a heavy weight, but sufficient for several interceptors based on Brilliant Pebbles technology.

Figure 14 shows a more conventional Raptor UAV concept in the lower right-hand corner; it also was transferred to NASA a decade ago – when the Defense Department scuttled this SDI activity in 1993. NASA Administrator Dan Golden and others were persuaded to continue developing the technologies. The Pathfinder remains in an operational mode today, but the other Raptor UAV has been mothballed.

At a 1992 Missile Defense Conference in Tel Aviv, I encouraged the Israelis to initiate such a UAV option; and thanks to some friends on Capitol Hill, the Israelis have been pursuing it for the last decade – without the benefit of the best of U.S. technologies. They now are looking more for a "pre-boost phase" intercept from a UAV; in this context they will rely on Arrow to defend against the first shot, and when the UAV sees the first shot, it will shoot the launcher before it can get off another. In any case, a UAV-based light-weight boost-phase interceptor is an operational concept that deserves attention for coastal defense applications, and would be relatively inexpensive.

The challenge was to make Raptor (originally made by hand) for about $1 million a piece. Compare that with Global Hawk – they now cost several tens of millions apiece. They carry a much bigger payload; Raptor carried two hundred kilograms, enough for five or six Talon

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interceptors like those we were developing a decade ago. We had hardware demonstrations that this could be done.

East Coast Test Range

One other thing to note: one of the strategies being pursued by the Missile Defense Agency is to use the Pacific test range to provide an initial homeland defense capability. Figure 15 shows that there are also a lot of resources on the East Coast that could be exploited as an Atlantic test range, and with the right kind of tests they could compose the inherent infrastructure for a coastal defense.

Various radar and other facilities already exist and could be internetted together. These Eastern range assets can be used to track both target missiles and interceptors.

Every year, there are several launches from Wallop's Island – and a sea-based defense could exercise against these "free" targets, and actually plan intercept tests against target missiles launched from Wallops. Intercept tests from the sea can be conducted in a way that won't jeopardize the coastal regions of the United States. Such an active test program would demonstrate that the U.S. is serious about dealing with the "container ship threat." Thus, employing the East Coast Test Range in this way could produce real deterrent value.

Summary of Recommendations

In brief, recommendations that follow from the preceding discussion are:

- Fully test and deploy sea-based, space-base and air-based defenses:
  - Build on the first generation Brilliant Pebbles technology demonstrated a decade ago.
- Deploy sea-based defenses based on current technology as quickly as possible and then improve them with revived Brilliant Pebbles technology from a decade ago – if employed with sea-based options, such a lighter kill vehicle will enable a ~7 km/sec interceptor that fits in the current VLS, and the "Rounds go where the ships go":
  - This is the lowest cost improvement to existing infrastructure – which maximizes operational flexibility.

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- Restart and deploy Brilliant Pebbles in less than 5-years under streamlined management:
  - Advanced Technology could enable a boost-phase intercept capability, even against SCUDs,
  - Easily the most effective global defense.
- Revive Raptor-Talon for coastal defense applications.
- Revive SDI technology demonstrations and "Go back to the future."
- Integrate with Homeland Security plans and operations.

In summary, the Pentagon should fully test and deploy mobile defensive systems in all basing modes. This is not to argue that the ground-based system in Alaska should be canceled while pursuing more effective defenses. As SDI Director, I fully supported building ground-based defenses.

But by itself, a ground-based system is not an adequate defense. With a layered defense, we must choose to destroy attacking targets earlier in their flight. If we can get by the bureaucratic impediments from living with the ABM Treaty for 30 years and the collective amnesia of the Pentagon bureaucracy, after the Clinton administration killed innovative technology programs a decade ago, a program to begin deploying space-based defenses within five years is quite credible.

This is not a new conclusion; this was General Abrahamson's observation in his End-of-Tour Report in 1989, as he concluded his stewardship as the first SDI Director. That's also where we were when I was SDI Director. That's where the contractors said we were; and that's where the acquisition authorities in the first Bush administration said we were. But, of course, we had political problems in carrying out the program. The Treaty is gone, but many of those political problems remain.

An important observation is that the space-based interceptor technology from a decade ago can and should be exploited by other basing modes that have fewer political problems. This was recommended by the Defense Science Board in the 1989-90 period when the Brilliant Pebbles were first introduced and scrubbed by the entire technical community, in some dozen intensive reviews. Among these reviews, the

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JASON, a group not noted for its advocacy of missile defense, gave the Pebbles a clean bill of health. That technology is viable.

If the Pebbles technology is employed to provide light-weight kill vehicles for sea-based interceptors they can achieve the needed high velocity while fitting into the existing vertical launch system, thereby minimizing the impact on existing Navy infrastructure and operations. It is important to hit attacking missiles early in their flight – if at all possible in their boost phase – and this technology path gives every opportunity for achieving that possibility with sea- and air-based interceptors, as well as from space. Only a small area can be defended with low velocity interceptors. As the velocity goes up, that footprint grows and the operational constraints placed on the Navy are much reduced.

If velocities of 6-7 kilometers-per-second are achieved and the Navy's day-to-day operating area is considered, the substitution of an interceptor missile for another round used by the fleet would provide a significant amount of continuous coverage on a global basis, with essentially no force structure or operational impact. So higher velocities relax operational constraints as well.

A VLS-compatible high velocity interceptor is the lowest cost improvement to the existing infrastructure; a large dedicated defense missile and distinct support structure would have major adverse implications for Navy's infrastructure and operations.

Raptor-Talon should be revived for the coastal defense mission, among others. And as noted at the outset, truly viable technology program should be reinstated – one simply has not existed since the Clinton administration scuttled the SDI technology programs in 1993. When we were building ICBMs and concerned about how the Soviet Union could build defenses to defeat our ICBMs, we spent several hundred million dollars a year on a program called ABRES (Advanced Ballistic Reentry Systems), which was to design and fly countermeasures to defeat possible Soviet defenses. Several hundred million dollars in the 1960s converts to the one-to-two billion dollars I claim we need to spend on this same kind of technology today, now to assure that our defenses stay ahead of offensive countermeasures, including those that possibly can be deployed by rogue states and terrorists. It is

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going to be somewhat difficult to revive that level of program because we allowed it to get killed off without a whimper. And it is part of a larger defense science and technology problem.

Finally, it is obvious that we should tie whatever we do in building a coastal defense into our Homeland Security programs.

The foregoing article is based upon a presentation by the author entitled "Defending Ameica against Off-Shore Attack" as a contribution to the Washington Roundtable on Science and Public Policy program sponsored by the George C. Marshall Institute of Washington D.C.

APPENDIX

LETTER FROM AMBASSADOR COOPER TO SENATOR JOHN WARNER, CHAIRMAN, SENATE COMMITTEE ON ARMED SERVICES

July 31, 2000

Senator John Warner, Chairman
Committee on Armed Services
United States Senate
232 Russell Senate Office Building
Washington DC 20510

Dear Mr. Chairman:

I'm writing to correct the record, relative to recent testimony before the Senate Armed Services Committee by Defense Secretary William S. Cohen that the technical basis for emphasizing ground-based missile defenses was based on choices made in 1991 by the Bush Administration. According to a report in the July 26, 2000, *Washington Post*, he told your Committee that the Bush Administration selected ground-based missile defenses in 1991 as more technically mature and capable of more rapid development than space-based and sea-based

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alternatives. This is entirely untrue – it is contrary to history with which I am most familiar and indeed helped write.

I was Director of the Strategic Defense Initiative Organization (SDIO) from mid-1990 until January 1993; thus, I had immediate cognizance of all Ballistic missile defense matters in the era referenced by Secretary Cohen. Before then, as you know, I closely followed SDI developments from my U.S. Negotiator post at the Geneva Defense and Space Talks from 1985 through 1989. In early 1990, I conducted an independent review of the SDI program for then Defense Secretary Dick Cheney under a mandate from then President Bush and, in my March 1990 report to him, I recommended its redirection to the GPALS (Global Protection Against Limited Strikes) architecture. President Bush formally adopted this plan in January 1991 – and I had by then been working vigorously to redirect the SDI program for over six months. GPALS included a National Missile Defense (NMD) segment consisting of 5-6 sites of ground-based interceptors, a Global Missile Defense (GMD) segment consisting of 1000 space-based interceptors, and a Theater Missile Defense (TMD) segment consisting of several systems with sea-, air-, and mobile ground-based interceptors. A global command-and-control system was envisioned to integrate these segments and robustly protect Americans at home as well as our overseas troops, friends and allies from up to 200 Ballistic missile warheads launched by any nation.

In my 1990 independent review, I was briefed that the technology for space-based interceptors – Brilliant Pebbles – was technically mature and ready for formal development. This SDIO assessment was supported by independent reviews of the Defense Science Board, the JASONs and other technical groups. Furthermore, because of the global coverage of such space systems, it was clear that Brilliant Pebbles would be the lowest cost and the most militarily effective means of defending both the United States and our overseas troops, friends and allies. It could provide intercept opportunities against attacking Ballistic missiles beginning as early as in their boost-phase, throughout their exo-atmospheric mid-course phase, and even into their high-altitude endo-atmospheric reentry phase. [An architecture consisting only of ground-based defenses would clearly be a

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prohibitively expensive way to attempt to provide such global defensive coverage.] In any case, I recommended that GPALS consist of layered defenses, including space-, air-, sea-, and ground-based segments. Brilliant Pebbles was the most cost-effective GPALS component, by far.

Focused R&D on the Brilliant Pebbles space-based interceptor system was begun by LtGen Jim Abrahamson, the first SDIO Director, in 1987. It was formally designated the "first to deploy" component of American strategic defenses by my immediate predecessor as SDIO Director, LtGen George Monahan, and so announced in a Pentagon press conference which he convened in March 1990 – roughly simultaneously with my independent report to Secretary Cheney. Ground-based defenses were assigned to a follower role. Moreover, their programmatic success was expected to be dependent on widespread adoption of the cutting-edge technology being exploited by Brilliant Pebbles – an expectation which, regrettably, has never been realized.

LtGen Monahan established a Brilliant Pebbles Task Force within the SDIO to manage the weapons system acquisition and, on my watch beginning in about May 1990, a competition narrowed the contractor teams to two: ones led by TRW/Hughes and by Martin Marietta. In addition to my supervision as the Acquisition Executive for all missile defense programs, this acquisition process was under Defense Acquisition Board (DAB) oversight. With the approval of the Defense Acquisition Executive, Brilliant Pebbles became SDIO's first approved Major Defense Acquisition Program (MDAP) in 1991. Had this program been allowed to continue, the life cycle cost of the resulting constellation of 1000 Brilliant Pebbles was then expected to be about $11 billion (in 1991 dollars), which included replacing each satellite once and the costs of full system operations for 20 years. These cost estimates underwent the usual scrutiny of the formal DAB process. If we had been provided the needed enabling policy (freedom from Article V of the ABM Treaty) and the necessary funding, I anticipated that first generation Brilliant Pebbles could have achieved initial defensive capability as early as in 1996.

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The ground-based defense segment was not firmed up to anything like an equivalent status until well over a year later, and our progress was interlaced with the heated debate on Capitol Hill which led to the Missile Defense Act of 1991. I'm sure that you recall this period – since you were the primary author and a major proponent of that most welcome initiative after the Gulf War. Under intense Congressional pressure, memorably articulated to me personally by then SASC Chairman Senator Sam Nunn, I very reluctantly agreed to remove Brilliant Pebbles from its eminently deserved acquisition program status in 1992, in return for a Congressional commitment to begin deployment of a ground-based system "by 1996 or as soon as technologically possible" and, within the same statute, a formal promise that Brilliant Pebbles would receive "robust funding" as a technology demonstration program. Removing Brilliant Pebbles from its leading role most definitely was not a free will decision by the Bush Administration, contrary to Secretary Cohen's recent suggestion.

[I hoped to return Brilliant Pebbles to a formal acquisition status as soon as I could persuade the Congressional powers-that-be of the unique maturity, effectiveness and cost efficiency of the technology. The statutory promise – formalized in the Missile Defense Act of 1991 – of "robust" funding for this most promising space-based defensive layer was dishonored in 1992, as the legislative record unequivocally reads. Nevertheless, because of its technological maturity, Brilliant Pebbles could have been revived and built faster than the first ground-based NMD site. However, this point was rendered moot by Defense Secretary Aspin's direction to completely terminate the program in early 1993 – as he said, "taking the stars out of Star Wars."]

Of course, I am recapitulating political, not technical or scientific, issues that limited development of Brilliant Pebbles. The undeniable scientific fact is that the Brilliant Pebbles technology was mature in 1991 – as the *Clementine* deep-space mission so clearly demonstrated in 1994. This very successful technology demonstration program was formulated in my office immediately after the Senate floor debate on the 1992 Defense Authorization and Appropriation Bills made abundantly clear that Senator Nunn and his like-minded colleagues were committed to destroying the Brilliant Pebbles program. Barely

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two years later and at a cost of about $75 million, the *Clementine* deep-space probe space-qualified the first generation Brilliant Pebbles hardware (scavenged from the then-defunct Brilliant Pebbles program) and software in the first return to the Moon in 25 years – gathering over a million frames of high-resolution imagery in 15 spectral bands and discovering water in the polar regions of the Moon. The small *Clementine* team, which pioneered the "faster, cheaper, better" approach of which NASA Administrator Dan Golden is so fond, was given awards by NASA and the National Academy of Sciences for this most impressive achievement.

But to prove once again that no good deed goes unpunished, President Clinton used his short-lived line item veto authority in October 1997 to kill the proposed *Clementine* follow-on science program, a program roundly supported by the scientific community. In the associated press conference, National Security Council senior staffer Bob Bell made explicitly clear that the President's veto was because the *Clementine* follow-on program was continuing to demonstrate ever more mature and capable technology that also could be applied to space-based defenses.

Meanwhile, the acquisition program for the ground-based defensive segment has also had a tortuous history. Because of the Congressional mandate in 1991, I worked throughout the Spring of 1992 with the DAB process to gain approval for the National Missile Defense segment of GPALS. As I testified in 1992, we were not able to frame a program to deploy at the first site by 1996; but with the needed funding, we believed we could begin operations with prototypical hardware at a Grand Forks, North Dakota site as early as in late 1997. Fully developed hardware could have been operational as early as in 2002. This program plan was fully coordinated through all of the DoD acquisition offices and submitted to the Congress on July 2, 1992, along with then Defense Secretary Cheney's indication that he had directed it be implemented as a top national priority.

Congress did not provide the funds needed to reach this objective, but did appropriate $1.8 billion for FY1993. Notably, Congress dropped a specific date objective (1996 in the 1991

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Act) and called for deployment "by the earliest date allowed by the availability of appropriate technology and completion of adequate integrated testing of all system components." This funding shortfall and redirection from Congress led to a programmatic restructuring and an 18-month slip in the event-driven program strategy demanded by the DAB. The Defense Authorization Conferees did endorse the DAB's event-driven strategy as an appropriate low-to-moderate concurrency and risk program, observing that this plan could lead to deployment in about 2002. While noting that the Conferees did not yet endorse a decision to fabricate field prototypical elements at the initial site, the Conferees indicated they had no objection to planning for such a contingency as early as 1997 at the initial site. Of course, the Bush Administration's 1992 plans to reach these 1997 and 2002 dates were contingent on Congress providing the necessary funds – which Congress did not do.

Before the end of my watch, I had re-framed the NMD program to be consistent with the FY1993 appropriations and the Missile Defense Act of 1992. As indicated in my January 20, 1993, End of Tour Report, the DAB had approved a program that, if fully funded, could have begun defensive system operations in North Dakota with fully developed hardware as early as in 2004 (an 18-month slip because Congress did not provide the FY1993 funds necessary to keep the schedule proposed in the July 2, 1992, Report to Congress) – and with prototypical hardware as early as in 2000. The total investment to begin operations at the first site was expected to be around $22-24 billion in FY1991 dollars. Brilliant Eyes, the associated space-based sensor system, was expected to cost $4-5 billion. And the full multi-site NMD system was expected to cost an additional $16-18 billion – again, in FY1991 dollars. This program plan was fully staffed through the Pentagon's DAB with costing by independent OSD, Army, and Air Force – as well as SDIO – cost estimators. [Note that the first ground-based site was expected to cost about twice as much as the estimated life cycle cost of the Brilliant Pebbles segment of GPALS, which could have protected the entire world against limited attack. Simulations in 1991, using actual DSP data from the Gulf War, demonstrated that every SCUD launched by Iraq could have been intercepted by the Brilliant Pebbles constellation.]

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In any case, the NMD program was fully funded in the out-year Pentagon budget: the Ground-Based Radar and space-based sensor (Brilliant Eyes) programs already were proceeding under fully funded, DAB-approved MDAPs, and Requests for Proposal had been issued to develop Ground-Based Interceptors – formal proposals from the GBI contractors were to arrive in Huntsville, Alabama within 30 days as I departed from SDIO on January 20, 1993. The Clinton Administration therefore inherited a fully-approved NMD program – reviewed by the Pentagon's DAB and consistent with the law embodied in the FY1993 Defense Authorization Act – to build the first site to begin defending the territory of the United States as early as in 2000.

But the Clinton Administration – oblivious to the FY1993 Authorization and Appropriation directives – cut the $1.8 billion appropriated to develop the ground-based NMD system to $0.4 billion and returned unopened to the proposing GBI contractors their system development bids. The previously fully funded outyear NMD programs were cut by 80-percent. Ground-Based Radar development for NMD was discontinued – although related development continued because the THAAD GBR is part of the same radar family. Programs for space-based systems were sharply curtailed (as in the case of Brilliant Eyes) or eliminated completely (as in the case of Brilliant Pebbles). Even the Clinton's administration avowed top priority Theater Missile Defense programs were cut by 25 percent – scuttling the Navy's missile defense programs and boost-phase intercept technology demonstrations. Other technology programs to cope with the development of likely offensive countermeasures were also sharply cut – leaving current programs open to substantial criticism. Of great importance, the vision was lost for integrating the command-and-control system for forward-based TMD systems with a homeland NMD system.

In essence, these actions effectively destroyed the Nation's space-based missile defense options for the following decade. They also severely handicapped technical prospects for sea- and ground-based defenses, which could have benefited greatly from exploitation of the more mature key technologies that had been developed for space-based defenses in the 1980s and early 1990s.

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It is simply incorrect to assert that technology for ground-based systems was more mature in 1991 – the opposite was the case then and is, in fact, still the case. Indeed, ground-based systems could greatly benefit even today from exploiting the space technologies developed under the SDI program – which have continued to mature without support from the Pentagon's missile defense programs. It is shameful that the Clinton Administration has blocked the transfer of such technologies – presumably because their "Star Wars" origins make them politically incorrect.

Incidentally, review of the tortured history (since my 1990 independent review for Secretary Cheney) of the development of sea-based defenses would demonstrate that they, too, can be built sooner, cheaper, and better than ground-based defenses. While being much more cost-effective than ground-based systems from a technical perspective, both sea- and space-based defenses suffer from the same political problem – Article V of the ABM Treaty blocks their development, testing, and deployment, if they have NMD capability. So the fact that they are less expensive, more militarily effective, and can be built faster from a technical perspective will be of no defensive significance to the United States so long as the ABM Treaty continues to bind the hands of America's engineers. Furthermore, the fact that sea-based systems can easily be given NMD capability has led to a "dumbing-down" of TMD systems we are building to protect our overseas troops, friends and allies – all to avoid their having any NMD capability.

While I would have preferred an agreement with Russia along the lines the Bush Administration was discussing with Russia after President Yeltsin's January 1992 proposal to work together to build a joint global defense, I believe further negotiations about the ABM Treaty are no longer wise because of the imminent threat, as made clear by the Rumsfeld Commission. The Clinton Administration broke off those talks in 1993 and instead declared its allegiance to a restrictive interpretation of the ABM Treaty, which it has sought to "strengthen" – adding further restrictions that make more difficult even building effective theater defenses. We need <u>now</u> to build as soon as possible the most effective defenses we can for Americans at home as well as our overseas troops, friends, and allies. I believe

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this means moving away from the ABM Treaty immediately and building the most effective sea- and space-based defenses we can as soon as possible. If Russia wants to work with us to help build effective defenses for the world community – perhaps along the lines of boost-phase defenses as recently suggested by President Putin – that would be a welcome development. We should be willing to work together with all our friends and allies to build effective defenses for us all. But we need our enslavement to the ABM Treaty to end forthwith.

In summary, SDIO's history offers no support for the revisionist account of the relative maturity of ground- and space-based missile defense technologies in the early '90s recently offered to your Committee by Secretary Cohen (though I have no doubt as to his personal good faith in proffering such an account). Indeed, the historical truth is precisely the opposite of the impression his remarks conveyed. I urge the Committee to take into account this history in its future deliberations.

I appreciate the opportunity to correct the record on this potentially significant point. I would be pleased to discuss these issues further with you.

Sincerely yours,

Henry F. Cooper, Ph.D.

Cc:
The Honorable William S. Cohen
Senator Carl Levin
Senator Wayne Allard
Senator Mary Landrieu
Senator Thad Cochran
Senator Daniel Akaka
Senator Ted Stevens
Senator Daniel Inouye
Senator Trent Lott
Senator Tom Daschle
Representative Floyd Spence
Representative Ike Skelton
Representative Duncan Hunter
Representative Norman Sisisky
Representative Curt Weldon
Representative Owen Pickett
Representative Jerry Lewis
Representative John Murtha

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The Black Sea Region: New Economic Cooperation and Old Geopolitics

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The Black Sea is strategically located between southeast Europe and Asia Minor and it connects its littoral countries to the Mediterranean Sea and the world beyond. In 1992, after the collapse of communism and the break-up of the former Soviet Union, at Turkey's initiative the countries of this region signed a declaration that set up the Black Sea Economic Cooperation bloc (BSEC). The new organization was confronted, however, with problems of cultural diversity, economic stagnation, and opposing geo-political agendas. Turkey desired to expand its influence in the area and pushed for increased economic cooperation. Russia sought to perpetuate its political and military domination. Romania and Bulgaria pursued a policy of Euro-Atlantic integration., Ukraine and Georgia sought to assert their newly found independence from Moscow, while NATO adopted open-door policies with the intention of expanding into the region.

Key Words: Black Sea Economic Cooperation (BSEC) Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey, Ukraine, European Union, NATO, CIS.

For most of its modern history, the Black Sea was of limited importance to the Western world. However, with the demise of Communism and the dissolution of the former Soviet Union, the expansion of NATO and the European Union toward the east and the discovery of huge new oil and gas reserves around the Caspian Sea have combined to trigger a level of international attention unknown for this region in recent history, so that one might well ask whether this is just a temporary phenomenon or whether we are witnessing the emergence of a new center of global importance.[1]

The fall of Communism and the birth of the newly independent countries around the Black Sea offer unique political and economic opportunities to integrate this area into the modern Western-led world. However, three important questions remain. Will Russia, the main successor state of the former Soviet Union, accept a loss of status and cooperate as an equal partner with the other countries that border the Black Sea? And even if so, given the mosaic of cultures and interests that makes up the region, will the Black Sea countries prove capable of

[1] See among others Robert D. Ballard, "Deep Black Sea," *National Geographic*, May 2001,.

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collaborating to develop the opportunities that the changing circumstances might offer. Last but not least, what will be the attitude of the United States and of the countries of the European Union toward this newly important region?

A Brief Geographic and Historical Background

The Black Sea occupies a central position dividing Europe from Asia Minor. In a way, it is an extension of the Mediterranean Sea, with which it is linked via the small Sea of Marmara, the narrow Dardanelles and the Bosporus. In comparison to the Mediterranean Sea, which has a surface area of almost a million square miles, the Black Sea is only 168,500 square miles in size; but it is larger than the better-known Baltic and Red Seas. In addition, the Black Sea is deep, reaching over 3,600 feet; but its waters are heavily polluted and have a toxic composition that makes life impossible at depths below around six hundred feet.[2]

Known as Pontus Euxinus by the Romans, the Black Sea has been of major importance to the inhabitants of the area since ancient times. It was sailed in antiquity by Greek sailors and traders who founded its first city ports. Most Black Sea ports of today have their roots in Classical Europe, and ancient Greek and Roman ruins are still visible around them. The Romans controlled the western and southern shores of the sea and used them for commerce. One of the ancient silk roads connecting the West and the East also passed through the Black Sea area. The Byzantine Empire continued the Roman control of the Black Sea until the latter eventually fell into Ottoman hands, and for some centuries thereafter it became a Turkish lake, with its navigation and trade serving mainly Turkish interests. The ascent of Russia during the eighteenth and nineteenth centuries coincided with the gradual retreat of the Ottoman Empire and brought a new balance of power in the region. The eventual collapse of the Ottomans marked a radical change in the geopolitics of the Black Sea basin. New international agreements opened the navigation through the straits and through the Danube (which feeds into the Black Sea), helping reconnect the countries of the region with the Mediterranean Sea.

The establishment of the USSR after World War I modified further the geopolitical balance in the region, and Moscow's expansion in the Balkans after World War II transformed the Black Sea into a Soviet

[2] Ibid. pp. 55-68.

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stronghold. The Soviets built major military facilities along its northern coast and a strong Soviet Black Sea fleet posed a constant threat to Turkey and NATO. Instead of serving as a bridge between Europe and Asia, the Black Sea remained virtually closed to the West until the breakdown of the Soviet empire.

The end of the twentieth century witnessed a number of new trends little anticipated during previous years. The totalitarian regimes and their centralized economies fell apart. A new form of international competition and cooperation gave birth gradually to a global economic concept. On the European borders of the Black Sea, multi-ethnic states tended to break up and were replaced by new regional groupings of states. The most important feature of this part of the world at the end of the century was the emergence of a variety of newly independent countries. At the same time, the European Union and NATO began to expand toward the east and in the process became magnets for the newly independent Black Sea countries. After centuries of neglect and decades of Communist abuse, the new countries of the area saw a chance of cooperation among themselves and with the West both as a goal in itself and as a way to gain access to the Euro-Atlantic structures. Turkey, a full member of NATO and an aspiring member of the European Union, was the first to act.

The Black Sea Initiative

Ankara was behind the initiative of Black Sea cooperation, which dates back to 1990. Turkey saw a chance to spearhead a new age of regional development, and probably to regain some of the influence it had had in previous centuries. The other littoral countries, seeing it in their own interests to cooperate, acceded to the Turkish initiative. They also perceived it as a way to distance themselves from Moscow's tutelage. For most of the former Communist countries, the beginning of the 1990s was a period of euphoria, of rediscovered identities, of dreams of a better future. Russia, which from a geopolitical point of view was the prime loser in the new transformation of the region, joined the trend reluctantly and probably only because it could not afford to be left out. But while Moscow maintained a front of seeming cooperation, Russian imperialists were prepared to resort to violence to retain control over the former Soviet republics of the Black Sea basin.

From an economic point of view, the Black Sea is of prime importance to Ukraine, Romania, Bulgaria, and Georgia, countries that

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otherwise would be landlocked. It is economically important to Russia, too, because with its vast size Russia needs as many sea links with the outer world as possible. In addition, unlike the other seaports of Russia, its Black Sea ports are open to navigation almost year round. For Moscow, moreover, the Black Sea has geopolitical importance as the sole direct link to the Balkan countries and to the Mediterranean.

From a cultural and political standpoint, the countries of the Black Sea region do not have much in common except the sea itself. Most of them have a deep fear of Russia and uneasy relations with each other. They also belong to different cultures and ethnic groups, speak different languages, and have different histories, interests, and aspirations. With the exception of the Turks, however, who are Moslems, most of the inhabitants of the shores of the sea are Orthodox Christians. But even they do not always get along.

The Ukrainians, for example, have been controlled and abused for centuries by the Russians and are now trying to assert their newly-acquired independence. Aware of both their precarious internal situation and their geographical situation between Russia and Europe, the Ukrainians have chosen first to consolidate their statehood rather than to seek integration with the West. The Romanians, farther south, are traditionally Western-oriented, have been invited to join and would like to join the European Union. Romania, however, like practically every former Communist country of the region, is controlled by politicians who put their own interests before those of their country. Thus, reforms have been delayed for personal gain and the country has made little progress during the past decade to justify Western integration.

To complicate the situation, the very existence of Moldova is questionable, and unresolved issues remain pending between Romania and Ukraine. Bulgaria possesses large Turkish and Albanian minorities and the possibility of an eventual breakup of Macedonia is not to be discounted.

The Georgians, on the eastern shore of the Black Sea, are Orthodox Christians, like the Russians and most Ukrainians, Romanians and Bulgarians. But the country has endured harsh Russian treatment since it declared its independence. Strategically located near Turkey, it has to a large degree remained under Moscow's control.

As for Turkey, which launched the Black Sea cooperation project, its goals are chiefly economic, but with political underpinnings. Under the direction of its military, which seeks to restrict the power of Islamic

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radicals amongst the overwhelmingly Islamic population, Turkey seeks admission to the European Union, a move that might also benefit Israel, which has reason to fear any Turkish move toward radical Islam.

Moscow and the New Black Sea Trend

On 25 June 1992, the heads of state and governments of Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey, and Ukraine met in Istanbul and signed the Declaration on Black Sea Economic Cooperation (BSEC). Albania, Armenia, Azerbaijan, and Greece are not Black Sea-littoral countries, but they are interested in the cooperation, as are a few other countries that expressed their intention to join.

The founding statement stresses constructive relations based on the principles and documents of the United Nations and of the Organization for Security and Cooperation in Europe (OSCE). Its objective was defined from the start as "creating conditions for a mutually beneficial prosperity." The statement recognizes the need for economic cooperation based on free market economies and upholds the value of "good neighborliness, democracy, rule of law and respect for human rights." The document acknowledges that the region faces serious conflicts and dangers, but "the signers bind themselves to strive in good faith to oppose violence, aggression, lawlessness, terrorism, and to promote peaceful settlements." In the final sentences, the signatories declare their intent to transform the Black Sea into a region of peace, freedom, and stability that should "facilitate the processes and structures of European integration."[3]

The declaration on Black Sea Economic Cooperation was meant to mark the beginning of a new era. It turned out to be, however, a very difficult era. The document was too broad and optimistic for a region that was just rediscovering freedom and did not have the economic means to attain its new goals. Turkey was just experimenting with democracy and a market economy; the formerly Communist countries were in political turmoil and economic disarray. Most of the inhabitants of those countries were enthusiastic about democracy and had great expectations, but their immediate futures were bleak. Their leaders, former Communists, were in no mood to give up power to change the

[3] "The Bosporus Statement, Black Sea Economic Cooperation," Republic of Turkey, Ministry of Foreign Affairs, *http.www.mfa.gov.tr/grupa/af/bsec8.HTN*, 30 April 2001.

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systems in ways that would jeopardize their interests. For the population at large, the results were disappointing. Moscow and the Russians in general were particularly frustrated.

At the beginning of the 1990s, Moscow had plenty to worry about in the Black Sea Basin. Relations with Ukraine were very tense. Moldova was moving toward rejoining Romania, while Romania itself wanted to integrate with the West. The situation in the Caucasus was grave, and Georgia was improving its relations with Turkey. Russia was losing its preeminent position in the Black Sea, and Turkey was in the ascendant. While Ankara was launching a new regional policy, Moscow was under attack inside and challenged from outside. The new Kremlin leaders had to redefine Russia's policy and to update its military doctrine. During those tense years, nationalist Russian leaders agitated openly against the newly independent states, and many of the Russians living in these states took up arms and rose against the new local authorities. In the southwestern part of the former Soviet Union the ensuing events crippled the very countries that could have made the Black Sea cooperation work.

From Cooperation to Conflict

At the end of World War II, Moscow demanded a foothold in Constantinople and the Turkish Straits, but Western allies rejected the demand. Fifty years later, Moscow was in no position to demand anything, but neither would it accept the prospect of being reduced to just another country of the region. Simply put, Moscow could not accept the idea of losing an empire and the status of superpower, let alone relinquishing control over Ukraine and the Black Sea.

After almost 350 years under Russian control, Ukraine was in a precarious position when it declared independence in 1991. The easternmost region of the country was highly industrialized and heavily Russified. Crimea, a gift received symbolically from Khrushchev in 1954, had a multi-ethnic population. The western part of the country, another recent addition, was largely Catholic and Western-oriented. Thus, from the very beginning, Ukraine was bound to collide with Russia. The first Russo-Ukrainian dispute was caused by the status of the former Soviet fleet headquartered in Sevastopol. The dispute was aggravated by the claim of Crimea's Russians to secession and by the pro-Russian attitude of the industrialized Don Basin. After a few years of quarreling, Russia agreed to split the ships of its Black Sea fleet with Ukraine and to

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recognize Ukraine's sovereignty. But Moscow would not give up on other regional issues.[4]

If Moscow's disputes with Ukraine were settled peacefully, others were settled only by instigations to rebellion, war, and military intervention. Such wars occurred in the early 1990s in the newly-proclaimed independent republics of the Black Sea basin from Moldova to Georgia, and from the Northern Caucasus to Trans-Caucasus. Georgia, an area of great Russian interest, paid the highest price. Instigated by Moscow, the small Abkhazian minority declared separate independence and engaged in a brutal civil war against the Georgian authorities. This formerly autonomous region, situated on the Black Sea coast next to Russia, secured its independence to the surprise of everyone. At the start of the war, the Abkhazian minority had made up only 18 percent of the population of this autonomous region, while Georgians made up the majority. By the end of the war, practically the entire Georgian population of about 250,000 had been forced to move to Georgia proper. At the same time, the Ossetian autonomous region of northern Georgia, helped by the Russians, waged its own successful war and virtually split from Georgia. To worsen the situation, the Russians also induced the Ajar autonomous region, bordering the Black Sea and Turkey, to rid itself of Georgian rule. Moreover, a predominantly Armenian region where a Russian military base was located broke with Tbilisi and asked the Russian troops to stay. Powerless against the combined secessionist and Russian forces and wrecked by internal divisions, Georgia lost the wars and with them effective control over half of its Black Sea frontage. The war humiliated the government in Tbilisi and forced it to sign a treaty that allowed Russia to maintain military bases on Georgian territory.[5]

The Chechen wars represented another Russian geopolitical reaction to the challenges of the post-Soviet trends in the region. Although Chechnya is a small autonomous republic of the Russian Federation, its successful separation could have grave consequences for Moscow. The

[4] For details see Tyler Felgenhauer, "Ukraine, Russia, and the Black Sea Accords," Woodrow Wilson School of Public and International Affairs at:

http.www.Princeton.edu/cases/papers/Ukraine.htr, 30 April 2001;

and Vladimir Lehovich and Ahmed Hashim, *Issues for the US Navy in the Black Sea Region: Country profiles and Recommendations* (Alexandria, Va.: Center for Naval Analyses, 2000), pp. 87-96.

[5] Lehovich and Hashim, pp. 162-164.

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avowed goal of the first leader of Chechnya, former Soviet general Djokar Dudayev, was to unite in an independent country all the autonomous republics of northern Caucasus, from Abkhazia at the Black Sea to Dagestan at the Caspian Sea. Moscow could not accept such an outcome, and the wars that it waged against the Chechens were brutal in the extreme. This reaction to Chechen separatism also explains why Moscow vigorously helped Abkhazia and South Ossetia against Georgia and sided with Armenia in Nagorno-Karabakh.[6]

The predominantly ethnic Armenian enclave of Nagorno-Karabakh called into play yet another Russian geopolitical response. The enclave is located near the Armenian border but inside Azerbaijan. Once the Soviet Union dissolved, the Armenian leaders of Nagorno-Karabakh and the Armenian government in Yerevan decided to split the province from Azerbaijan and unite it with Armenia. Out of fear of Turkey, Armenia had remained loyal to Moscow after the breakup of the USSR and enjoyed Russia's support against Azerbaijan. The victory, however, was pyrrhic, because Armenia found itself outside the mainstream of the new political trends in the region. Nevertheless, the results pleased Moscow, where the foreign minister declared openly in 1993 that the Caucasian region represented a zone of "vital interest" for Russia. And he warned against "the danger of losing geo-political positions that took centuries to conquer."[7]

Another Black Sea conflict triggered by Moscow and local Russians was in the Trans-Dnestr. This region, a rather small area of the newly-independent republic of Moldova, is located on the left bank of the Dnestr River. Moldova, however, is basically the former Romanian province of Bessarabia; and, pursuing its hidden geopolitical agenda, Moscow did everything to block its possible reunification with Romania. By Russian accounts, Russia spent huge resources to make sure that Moldova remained under its control. In case the new Moldovan leaders still contemplated reunification with Romania, the Russian population of Tiraspol, with the help of nationalist circles in Moscow, created the Moldovan Trans-Dnestr Republic. In 1992, to secure its existence, it

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[6] Nicholas Dima, "Russia, the Caucasus, and Chechnya," *The Journal of Social, Political and Economic Studies*, Summer 1995, pp. 156-158.

[7] "Russia Asserts Role in ex-Soviet Republics," *Washington Post*, 29 September 1993; "Kozyrev on Vital Interests in the Caucasus," Radio Free Europe-Radio Liberty Report (*RFE-RL)*, 8 October 1993.

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triggered a war against the government in Chisinau, a war that claimed about a thousand lives and produced 100,000 refugees. Whenever the Moldovan forces prevailed during the armed conflict, the Russian units of the Fourteenth Army in Tiraspol would intervene. The commander of this army, Gen. Alexandr Lebed, declared on several occasions that "the Dnestr region was the key to the Balkans" and that it was a strategic crossroad between Ukraine, Romania, and the Black Sea. "If Russia loses this area," he stressed bluntly, "it will lose influence in the entire region." Moscow also insisted that any action in the Danube Basin and the Black Sea required its prior agreement, because these areas were of "traditional Russian interest." Moscow's continuous support for the rebellious Dnestr republic is of concern to Romania and Ukraine, which fear that it betrays hidden Russian intentions in the region.[8]

From Conflict to Accommodation

The breakup of the Soviet Union in 1991 caught Moscow and ethnic Russians generally by surprise. Neither the Soviet leadership nor the Russian populace were ready for such radical changes. During the Soviet years, the Marxist leaders had taken advantage of the Russian majority to control the country's political system, and the Russians had taken advantage of the system to keep the other nationalities under their rule. The demise of Communism and the dissolution of the Union left the two complementary camps in confusion. In the new climate, many Russians of the non-Russian republics took matter into their own hands.

Meanwhile, Moscow prepared a new political and military doctrine. In 1992 Moscow announced the doctrine of "near abroad," proclaiming Russia's exclusive interests in the former Soviet republics. At the same time, Moscow demanded the right to keep military units on the territories of these republics and on their borders. It appears that in the

[8] "Russia Asserts Interests in the Lower Danube," *RFE/RL Report*, 23 February 1993; Nicholas Dima, "The Moldavian Trans-Dnestr Republic: A Geopolitical Game," *The Journal of Social, Political and Economic Studies*, spring 1999, pp. 49-51. Gen. Lebed was a strange but colorful political figure during the recent post-Soviet years. A former officer in Afghanistan, he helped Yeltsin against the Communist attempted-coup in 1991 and was rewarded with a high security position in the Kremlin. While in Moldova, he supported the Russian Trans-Dnestr separatists, but contemplated the possibility of Moldova's reunification with Romania. He also negotiated a settlement to the first war in Chechnya and accepted the idea of a referendum for possible independence. Although an outsider in the Kremlin, Lebed had his own followers and ran unsuccessfully against Putin for Russia's presidency. He was then elected governor in Siberia, but died suspiciously in a helicopter accident.

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Black Sea region, Russia was especially preoccupied with Turkey, which Moscow saw as aspiring to treat the sea as its own preserve. During the decade of the 1990s Turkey, indeed, maintained the strongest military navy in the Black Sea, but avoided displays of its forces and challenges to Russia. According to a Russian newspaper, for example, in the mid-1990s Russia had fifty-two warships and four submarines in the Black Sea, while Turkey had 116 surface ships and craft and sixteen submarines.[9] By this time, however, Moscow had managed to reestablish control over most of the former Soviet republics. If Moscow's military control was indirect or veiled, its economic and political control was open.

The dissolution of the Soviet Union prompted Moscow to create the Community of Independent States (CIS), aimed at restoring its political and economic control over the former USSR. Most of the former republics joined the economic side of CIS but refused to join its military and security arrangements. This suspicious Russian-led reintegration caused resentment among members and continuous bickering. Discouraged by such disagreements and aiming to strengthen their own statehood, Georgia, Ukraine, Azerbaijan, Moldova, and later Uzbekistan set up a new cooperation bloc called GUUAM (initials of the names of the member countries). Russia, however, perceived this group as an attempt to undercut its dominance of the CIS, and it countered by increasing its cooperation with Armenia, Greece and Iran. At the same time, Moscow continued to help Abkhazia, Nagorno-Karabakh and the Trans-Dnestr Republic, which for all practical purposes were independent entities. The very existence of these quasi-states reminded Azerbaijan, Georgia, Moldova, and Ukraine of their tenuous situations should they further challenge Moscow's domination. Indeed, an American analyst has noted that post-Soviet Russia was not likely to play a constructive role in international affairs, and that it was strong enough to endanger its newly-independent neighbors. This is exactly what Russia did.[10]

Despite these conflicts, the Black Sea initiative took off and the dialogue among its members continued, which was in itself an achievement. By the mid-1990s, having secured again its control from Moldova

[9] Izvestyia, 3 October 1996, cited by Olexandr Pavliuk, "The Black Sea Economic cooperation: Will Hopes Become Reality?" in Subregional Cooperation in the New Europe, Ed. Andrew Cottey (London: Mcmillan, 1999), p. 139.

[10] William E. Odom, "Realism about Russia," *National Interest*, Fall 2001, p. 162.

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to Georgia, Moscow itself was open for this dialogue. Yet, Russia's position was far from clear.[11]

At the beginning of the new millennium Moscow is confronted indeed with a difficult geopolitical dilemma and a crisis of identity. The Russians have a strong cultural and historical identity, but a poor geographical one. The Russians know who they are, but do not appear to know the extent of their country. Does Russia extend to cover the Caucasus region? Should Russia hold on to Chechnya at any price? And what if other regions decide to secede from the Russian Federation?

If Moscow decides fully to adopt Western standards of democracy, Russia could indeed be confronted with territorial issues. By reforming itself, Russia could lose control over some parts of its land. By rejecting drastic reforms, Moscow could save its empire for a while longer, but its people will have no hope of achieving freedom or prosperity. Russia's recent attitude toward the Black Sea Basin illustrates how difficult it is to make a choice.

The Black Sea Initiative and the West

Since its official foundation in 1992, when it elaborated the Bosporus Statement, the Black Sea Economic Cooperation (BSEC) has evolved into a well-structured international organization, with a permanent secretariat in Turkey, a regional bank in Greece, and the seed of a Black Sea university in Romania. The permanent secretariat (PERMIS) is located in Istanbul and coordinates twelve working groups with specific agendas. The Black Sea Trade and Development Bank (BSTDB) was established at Thessaloniki in June 1999 as the financial pillar of the organization. A parliamentary assembly (PABSEC) was chartered in 1998 and ratified by the member countries by May 1999. In addition, the organization acquired official observer status at the United Nations. The highest decision-making body is an assembly of foreign ministers who meet frequently; ultimate power, however, rests with the national governments. The chairmanship is rotated, and meetings of the heads of states and governments of the member countries are held periodically.[12]

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[11] For details see Charles King, "The New Near East," *Survival*, Summer 2001, passim.

[12] See among others Pavliuk, "The Black Sea Economic cooperation," p. 130. The twelve BSEC working groups are: transportation, energy, banking and finance, trade and industry, agriculture, environment, health care, science and technology, legislative information, tourism, and communication.

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So far, summits have been held in Istanbul in 1992, in Bucharest in 1995, in Moscow in 1996, in Yalta in 1998, and again in Istanbul in 1999. Each summit resulted in joint declarations and new decisions to increase cooperation. In addition to summits, numerous meetings have been organized at every level, from ministerial conferences to working groups and to small topical conferences. For example, in April 2001 a foreign ministerial meeting in Moscow called for BSEC to be a more consolidated, effective, partnership. The BSEC Website announces so many meetings that one gains the impression that this is either a very active organization or its main purpose is to debate its structures and agendas.[13] The fact is that few of the major goals set by the organization have been tangibly achieved. The most pressing are environmental, economic and political.

Water pollution in the Black Sea is especially severe off its northern coast, caused chiefly by industries operating along the Danube, Dnestr, Dnepr, and Don Rivers. During the decades of forced industrialization in the former Communist countries of the area, the pollution increased alarmingly. As a consequence, over the last several years fishery yields have diminished dramatically, and some marine species have been threatened with extinction. Alarmed by the situation, in 1993 the riparian countries established a special environmental program (BSEP) aimed at saving the Black Sea. The project was endorsed by the member countries in 1996 and got under way in 1997, with initial American funding. A parallel program was set up to save the Danube and the Danube Delta. NATO and other international organizations also got involved in Black Sea ecological programs.[14] The main polluters, however, particularly Russia and the Ukraine, showed little interest in addressing this major problem and in reducing the pollution on their rivers. Nevertheless, the environmental field is one in which the BSEC negotiations have produced real programs and achieved practical results.

In terms of economic cooperation, which is the chief goal of the organization, results have been more modest. Nevertheless, important

[13] "BSEC Structures-Black Sea Economic Cooperation,":

http.www.iews.org/srd/bsec.nsf/pages/HTML4, 31 October 2001; "Declarations on Joined Statements," *http.www.bsec.gov.tr/pressrelease.htm*, 31 October 2001; "Calendar of BSEC Events, May-October 2001," *http.www.bsec.gov.tr/CALENDAR.htm*, 31 October 2001.

[14] "Building Development Partnerships: Save the Black Sea,":

http.www.iaea.or.at/worldatom/Press/UndpBook/blacksea.htr, 4 April 2001; and "The NATO TU-Black Sea Project Workshop," *http://www.ibss.iuf.net/links/nato/dbnews24.html*, 4 April 2001.

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issues have been raised. Among them are the need for a better infrastructure around the Black Sea, integrated with the wider European network; the need to develop a common energy market and better financial systems; and the need to expand trade and to improve communication. While some results have been obtained, most of the good intentions of the organization have yet to be achieved. For example, the Turkish proposal to transform the BSEC into a free trade zone has met with resistance from member countries with different goals. Also, since 1999, when the European Union officially invited Romania and Bulgaria to start negotiations for future membership, the two countries have shifted their main focus and interest toward the EU.

One delicate economic issue that confronts the Black Sea countries is routing the pipelines that in the future will deliver Caspian petroleum to Western markets. Having the pipes cross ones territory means a measure of control and important fees from the flow of oil. Russia, which borders the Caspian Sea and energy-rich Kazakhstan and Azerbaijan, insists that the pipelines should cross its territory. Romania and Bulgaria are competing with each other to bring the pipelines through their respective territories. Turkey insists on a new pipeline (BTS route) that would cross Azerbaijan, Georgia and Anatolia and would bring Kazakh and Caspian Sea oil from Baku to Tbilisi and then to Ceyhan on the Turkish Mediterranean coast. When completed, supposedly by 2005, this pipeline would pump roughly one million barrels of oil per day. The United States strongly favors this project, while Russia opposes it. Russia has already completed the Caspian Pipeline Consortium (PCP), which in August 2001 began to pump oil from northern Kazakhstan to the Russian Black Sea port of Novorossiysk. An additional pipeline has also been built by Russia from the Caspian Sea to the Black Sea, bypassing the troubled territory of Chechnya. Western experts call attention to the fact that continuous dependence on Russian pipelines would allow Moscow to raise tariffs, constrain exports, and extract economic and political concessions from its weaker neighbors. Nat the time of writing no final agreement has been reached with regard to the BTS line, but the odds are in its favor.[15]

There have been some practical results of the Black Sea cooperation

[15] Jan H. Kalicki, "Caspian Energy at the Crossroad," *Foreign Affairs*, September/October 2001, pp.122-125. From an economic point of view, a pipeline going through Iran would be a much better alternative, but politically it is unfeasible from the time being.

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initiative, but it is difficult to discern whether they are the fruits of the new accords that the organization has facilitated or of bilateral agreements. Among them is the construction of a highway around the Black Sea that has apparently already started; the laying of underwater fiber-optic cables between Turkey, Bulgaria, and Romania; and a number of cultural and tourist agreements. Romania and Bulgaria are building a new bridge over the Danube with Western financial assistance, and Romania and Turkey began to operate a ferryboat across the Black Sea. People also travel more freely throughout the region than previously, goods from one country are more readily available in the other countries, and in general there is a new climate of goodwill. Recent BSEC Website pages are even more optimistic and cite a number of accomplishments. The site asserts the determination of the member countries to seek common economic goals, to transform an area of malaise into one of confidence, to achieve open and permanent dialogue, to adopt a common approach to fight organized crime and illicit traffic in narcotics, to bring the member countries closer to European economic and political standards, to act as a bridge between Europe and the Caucasus, and to stimulate a new international interest in the region.[16]

The most difficult problems of cooperation in the BSEC, however, have been political and security in nature, and no real economic cooperation is possible without first safeguarding regional peace and stability. For the first several years of the organization, Moscow avoided any substantial discussion of permanent solutions to the new geopolitical complications that it had created around the Black Sea, and not much could be achieved without Russia's cooperation. Moscow began to engage in more serious negotiations only after regaining control in the region, especially after the 1996 summit, when it acquired the chairmanship of the organization. Yet, one can hardly say that engaging Russia in negotiations has brought tangible results. For example, Moscow proposed the enlargement of BSEC to bring in such new members as Yugoslavia and Iran, which would bolster its position. Romania opposed the proposal on the ground that such enlargement would make consensus even more difficult. It is obvious that Moscow's geopolitical actions and reactions in the Black Sea Basin have made impossible any

[16] "The Work Program of Turkey during its Chairmanship of the BSEC, May-November 2001," *http://www.bsec.gov.tr/chair.htm*, 31 October 2001.

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hard security agreement that it does not want.

There are, nevertheless, a number of issues, such as controlling international smuggling, intercepting the traffic of weapons and drugs, and combating terrorism, for which results are attainable; but the BSEC countries do not have the necessary financial means. By comparison with the West, the former Communist countries of the Black Sea Basin are extremely poor and their economies are in disarray. Average salaries are less than a hundred U.S. dollars per month, unemployment is high, and life expectancy is declining. In Russia, for instance, life expectancy has reached a low of fifty-nine years, lower than in India.[17] During the past decade the governments of these countries have borrowed heavily from the West just to survive, and in many regions populations have been left to muddle through on their own. Consequently, corruption at the highest levels is widespread and alcoholism and criminality are commonplace. By comparison, Greece and Turkey are in relatively good shape, but their economic resources are limited. If BSEC has been a good initiative in terms of promoting a new spirit from within, now the organization needs a boost from the outside to make an impact. If the European Union and NATO want to extend the area of stability and security to the east, they will need to do more than make pledges of moral support. Investments in this part of the world today may help ensure security for tomorrow.

During the past decade, Western Europe and the United States have been active in southeastern Europe but have not been determined or focused enough to make a strong impact. The most important Western initiatives of the 1990s for the development of the region have been the Southeast European Cooperation Initiative (SECI) and the Stability Pact. SECI, launched in 1996 with American support, aimed chiefly at improving cooperation among the countries of the region and at attracting foreign investment. The Stability Pact was launched in 1999 in Sarajevo to avoid future conflicts, promote democracy, increase security, and foster reconstruction.[18] So far, neither of them has produced the results anticipated by the impoverished people of the region; but they have brought new hope for cooperation. Nevertheless, after decades of what they perceive as abandonment by the West, the

[17] See *Population Reference Bureau*, 2001 World Population Data Sheet (Washington, D.C.: 2001), pp. 6-9.

[18] See "The New Near East," pp. 56-57.

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people of the region expect a great deal more from the European Union and from the United States.

The Black Sea Initiative, NATO, and the United States

Over the past several years three visions of the future of the organization have evolved within the Black Sea countries. First, understanding their need for security and acknowledging current trends toward economic globalization, Turkey, Romania, and Bulgaria have adopted an openly pro-Western policy. They have promoted cooperation of equal partners in the region and have envisioned full integration with NATO and the EU. In addition, Turkey hopes to prove itself a stable pivot in this part of the world and a useful link between Europe and the newly independent countries of Central Asia.

Moscow, however, has its own separate vision, although it has not spelled it out openly. Russia is searching for a twenty-first century identity, but in the meantime it continues to promote nineteenth century geopolitics. Consequently, Moscow has not opposed BSEC per se, but has taken pains to perpetuate its control and to prevent any other nation from getting the upper hand in the Black Sea area.

Between these two poles is a third vision. Realizing that their current chances of integrating into the Euro-Atlantic structures are slim, the Black Sea GUUAM countries have tried to act as a new bridge between Europe and Russia by asserting as much independence as possible. If Russia opts to remain outside Europe, these countries could become a buffer zone separating the West from the new Russia. In a way, these countries might play the role the former East European countries played during the cold war. At the same time, the European Union has initiated a process of enlargement, stressing that it is open to any aspiring candidate able to make the changes necessary to qualify for membership. Undoubtedly, the prospect of integrating into the West and the hope of enjoying its prosperity have prevented conflicts and have made Eastern European countries more tolerant, less belligerent, and more open to cooperation.[19]

During the post-Communist transition, the United States has assumed a major role in the Balkans. As regards the Black Sea Basin the most visible American involvement during the 1990s was through

[19] See among others Peter H. Liotta, "Future Talks: Building the Hybrid Security Community in the Euro-Mediterranean," in press.

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NATO's Partnership for Peace (PfP) and through bilateral or multinational military exercises. The level of cooperation with the United States and the U.S. Navy has differed from country to country, but every Black Sea country has adhered to the PfP programs. Russia joined the PfP in 1994, but after NATO's 1999 Kosovo campaign it reduced its participation. Moreover, Russia perceives the U.S. initiatives in the Black Sea as undermining its own position and feels that it is being singled out once again as the enemy. Accordingly, as of 2000 Moscow revised its military doctrine, emphasizing anew the threats of U.S. world hegemony and of NATO expansion. Furthermore, Moscow abhors the idea of being treated as just another Black Sea country and has rejected vehemently any intention of integrating Ukraine and Georgia into NATO. Nonetheless, Washington has managed to engage Russia in various international activities, from combating organized crime to fighting terrorism.[20]

Since the collapse of Communism, Turkey, has been regarded as an important ally by the United States, but it has faced many difficulties. The military continues to resist the power of the Islamic majority, but successive secular governments have been confronted by domestic economic difficulties, Kurdish separatism, and the rise of militant Islamism, with a moderate Islamist government currently holding power under the watchful eyes of the military. Nevertheless, during the past decade Turkey has cultivated excellent relations with Romania and Georgia, has supported Ukraine's independence while keeping good relations with Russia, and vigorously backed the integration of Romania and Bulgaria into NATO. Although it has not welcomed the presence of the U.S. Navy in the Black Sea, claiming that this could trigger a negative Russian reaction, the United States has stressed that it wants Turkey to remain strong and stable, to develop along democratic and secular lines, and to maintain strong security ties with the West.[21] Furthermore, in June 2001 President Bush proposed that every new democracy from the Baltic Sea to the Black Sea be admitted to NATO, and among the BSEC countries Romania and Bulgaria have been accepted. Such steps toward the expansion of NATO help to stabilize the southeast reaches of Europe and ultimately serve also to consolidate America's position near the Middle East.[22]

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[20] Lehovich and Hashim, pp. 3-11.

[21] Ibid. pp. 33-47.

[22] James Kurth, "The Next NATO," *National Interest*, Fall 2001, p. 5. For a full discussion

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Romania has been the most pro-Western Black Sea country and was the first to adhere to the PfP, as early as January 1994. In fact, after its December 1989 revolution Romania entered a period of excellent relations with the United States and offered NATO the use of the port of Constanta, the largest on the Black Sea. Throughout the entire decade of the 1990s, enthusiasm for America, Western Europe, and early accession to NATO remained high in Romania, but much-needed economic reforms lagged badly behind expectations. Nevertheless, Romania was officially accepted as a future candidate to the European Union, and the government began to focus on the goal of joining the EU. With regard to its Black Sea capabilities, American analysts consider Romania's navy small but serviceable. The Romanian navy, on its part, has welcomed all cooperation with the U.S. Navy, seeing the American presence in the Black Sea as a major stabilizing factor. Romania also considers itself an important strategic partner for the West in this part of Europe. In this regard, it borders a long stretch of the Danube and has a recently-built canal that bypasses the Danube Delta and connects Constanta with Rotterdam through the new Danube-Rhine canal. Constanta and Rotterdam are sister cities and The Netherlands has decided to help modernize the Romanian port to better serve the hinterland of Europe.[23]

Bulgaria's position on the Black Sea and its degree of cooperation with the West is largely similar to those of Romania. The only difference is that traditionally Bulgaria was pro-Russian and anti-Turkish, and in the past it was an obedient Russian ally. Since the fall of Communism, Bulgaria has improved its relations with Turkey and has pursued a pro-Western attitude, has been approved for membership of NATO and has hopes of joining the European Union. Recently, Bulgaria helped arm the Macedonian army, an act that contributed to the stabilization of the Balkans.

Georgia, for its part, has been much more cautious than Romania over the past decade and only recently has expressed a desire to become

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of the candidacy of Romania and Bulgaria see also Jeffrey Simon, "NATO's Membership Action Plan and Defense Planning," *Problems of Post-Communism*, May/June, 2001, pp. 34-35.

[23] "Strategii Olandeze pentru Dezvoltarea Portului Constanta," *Romania Libera*, 15 November 2001. For a discussion of Romania's candidacy to NATO see Larry L. Watts, "The Crisis in Romanian Civil-Military Relations," *Problems of Post-Communism*, July/August 2001, pp. 23-24.

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a NATO member. It is the weakest and least stable of all the Black Sea countries, possessing only a miniscule fleet, even more poorly equipped than the rebel Abkhazian fleet which Russia created. Georgia, however, is Western-oriented, and its relations with the United States are good; recently, the United States granted financial assistance to boost Georgia's coast guard. Nevertheless, the country remains at the mercy of Russia's geopolitical whim.

Between its traditional ties with Russia and its desire to move toward the West, Ukraine finds itself in a very difficult situation. Western analysts fear that Ukraine's independence and territorial integrity are not yet assured. Almost one-fourth of Ukraine's population is Russian, and this group as well as other citizens may prefer strong ties with the Russian Federation. Nevertheless, as long as Kiev continues to maintain good relations with Moscow and avoids tilting toward NATO, Russia seems willing to respect the status quo. In the Black Sea, Ukraine has cooperated with the American-led PfP, but its navy is considered largely ineffective; in any case, it is manned by Russians. Ukraine has participated fully in BSEC programs, maintained considerate relations with its neighbors, and promoted good relations with the United States. Ukraine's main problems are its ruined economy and the need to pursue a balancing act between Russia and the West. Other potential problems for Ukraine and Romania, aside for the murky future of Moldova and the Trans-Dnestr republic, are some territorial disputes. One of them is over the miniscule Serpent Island. This island was formerly part of Romania, but it was taken by the Soviet Union after World War II. The transfer was never confirmed by a legal agreement. In 1992 the island was inherited by Ukraine. The rocky island is not inhabited and is of little importance in itself at present, but its strategic location at the mouth of Danube and the prospect of finding oil on its platform is a cause of friction. In 1997 Romania and Ukraine signed a friendship treaty, but misgivings continue on both sides.[24]

The September 2001 terrorist attacks against the United States and the new evidence regarding terrorist activities in Western Europe and other regions of the world have convinced NATO of the importance of extending the area of stability and support into Eastern Europe. In May 2002 Russia itself engaged in a joint council for closer cooperation with

[24] Nicholas Dima, *Moldova and the Transdnestr Republic* (New York: Columbia Univ. Press, 2001), pp. 40-41.

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NATO, and seven formerly Eastern Bloc countries became candidates for full membership of the North Atlantic Treaty Organization, extending NATO's sphere over the Black Sea to link up with Turkey. Bulgaria and Romania had already offered NATO access to some of their harbors and airports, and ahead of becoming an official member of the organization, Romania sent a special military unit to Afghanistan to operate alongside the American troops against the Al Qaeda groups near the Pakistani border.[25]

Conclusions

The Black Sea cooperation initiative is a promising project, with excellent ideas and substantial goals but with limited resources and a modest record of achievement. Over the past decade, the BSEC has managed to promote a continuous dialogue, avoid further conflict, and attract a great deal of international attention. However, the organization has encountered problems of diversity, poverty, varied aspirations, and meager foreign investment. Furthermore, the traditional Russian geopolitical aims have been on a collision course with the new Western ecopolitical goals. While Moscow's final intentions remain unclear, NATO and the European Union are striving to transform the Black Sea into an area of international peace and stability. Indeed, the Black Sea Basin could become a region of cooperation and a bridge toward Central Asia and the Middle East. However, to further such goals, the region will need substantial assistance and much more Western involvement.

The price to the West of integrating these countries will be high from a financial point of view, but the price of not integrating them into the Atlantic structures could be even higher. It is possible that in the future NATO will have to change its nature, but every institution has to adjust to new conditions in order to survive. Leaving Southeast Europe and the Black Sea Basin out of the West could encourage other powers to step in and attempt to transform the region into a springboard of organized crime and international terrorism.

[25] "NATO Ready to Admit Seven Eastern Bloc Countries," *Washington Post,* 26 September 2002.

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What Kind of Aid for a World in Want?

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The current international ideology of redistribution of wealth from the "have" nations to the chaotic Third World is failing. What is needed is an understanding of the causes of failure: a demographic explosion and lack of sufficient intellectual capital to build nations on the basis of secular rational solutions. The only hope is intellectually to improve these populations.

Key Words: Third World chaos, re-colonialization by International Agencies, demographic crisis, intellectual capital, secular rationality.

Unending Need

Axiom: Understanding comes before action. There are billions of the very poor on our planet. There are also tens of millions on the edge of death from starvation, plague and anarchy. James T. Morris, executive director of the World Food Program sees approximately 40 million people needing immediate food provisioning from national and international agencies, to be funded by the wealthy nations of the world [*Washington Post*, Dec.25, 2002]. Mere provisioning at the present rate of relief contributions won't do it, he claims. The soaring increase in need, precipitated by sudden draught, war, political chaos, plague (Aids), reflects an ever increasing arc of need which now extends throughout the Third World.

Southern Africa is declining into an area of desperate need. In the Horn of Africa the annual population increase is acute: Somalia, +2.89 percent; Ethiopia, +2.68 percent; Eritrea, +3.05 percent. All of these nations, whose women give birth on average to between 6-8 children, have entered a critical stage of want, the edge of massive starvation. [Central Intelligence Agency. 2001. *The World Fact Book,* McLean, VA]

Central America is feeling the impact of natural and human disaster, storms, then draught, population surges, examples, Nicaragua, +2. 28 percent; El Salvador, +2.25 percent; Honduras, +2.64 percent (also Catholic nations – Spain, +0.1 percent; Italy, -0.1 percent). North Korea, under the boot of tyranny, faces starvation for its millions.

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On top of this currently growing state of desperation in the "Third World," is the growing weakness of the formerly wealthy "First World," including Western Europe and the United States. Here demography and history give clear testimony.

Turkish immigrants into Austria have on average 4.43 children per female; Austrian nationals 1.64 children per female. Belgian nationals average 1.6 children per female – Turkish immigrants to Belgian = 5.0 children per female; Moroccan immigrant females = 5.7 children per female. Great Britain nationals 1.7 per female, Pakistani immigrants to Great Britain = 5.3 children per female; French nationals = 1.82 children per female. Immigrants to France from Morocco = 4.47; from Algeria = 4.24; from Tunisia = 4.67; from Turkey 4.55. [Coleman, D.A. 1994 "Trends in fertility and intermarriage among immigrant populations in Western Europe as measures of integration" in *Journal of Biosocial Science* 26: 107-136; White, J.B. 1997 "Turks in the New Germany" *American Anthropologist* 99: 754-769; Central Intelligence Agency, 2001. *The World Fact Book,* McLean, VA].

In the United States the Hispanic ethnic population U.S rose 58 percent between 1990-2000, the overall population rose 13 percent; Whites rose 6 percent. African-Americans rose 15.6 percent, between 1990-2000. By 2050, the U.S. Census Bureau estimates that these two minorities plus smaller proportions from southeast Asia will constitute 50 percent of the U.S. population.

These people, immigrants to Europe and minorities in the U. S, are poor now. They will continue to add to the poverty in these respective homelands. Western Europe and the United States, will be increasingly unable to produce the trillions in tax wealth that has been and is currently being redistributed to those nations on the brink.

The Tactics of Desperation

What does one do with a nation such as Zimbabwe, where a calculating tyrant, Mugabe, has effectively expelled the most productive segment of his population, the 4500 white farmers, confiscated their land, and sent his nation reeling into chaos and starvation, all in order to cement his despotic control over a suffering people? Clearly there is here and elsewhere a case for re-colonialization (choose the appropriate

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euphemism), possibly under the protective umbrella of the United Nations, to stabilize this nation and give the people back both its food and foreign currency-earning exports.

The same tactic must be applied throughout the zone of extreme suffering and tragedy. Starvation is a twin to political and military chaos now engulfing Africa and so much of the rest of the Third World. To save the people for whom nationhood was intended, a new international form of post-colonial supervision may have to be applied.

Certainly, food must be paid for. It is presently in abundant supply because hard working, farmers of the developed world have invested in seed, fertilizer, insecticide, gasoline for their tractors, banks for their financing, electricity to run the machinery. Finally, their intellectual capital is reflected in their thoughtful and unsparing labor to bring forth this bounty. Their own governments must purchase this bounty from them, the citizens of the nation must ante up their taxes to provide the government's wherewithal, thence to transport it to the destination of greatest need.

After all this effort, it is grossly irresponsible to allow the local thieves in power to be the dispensers of the donated food to the local needy. These nations, wherever located, are for the most part failed nations, their citizens pleading for honest competent leadership. Birth control guidance, even in the absence of U.S. participation, must not be far behind. For too long, misguided aid, such as that provided by U.S.S. Hope, missionaries and medical groups, has taken the form of programs which have served to sky rocket the birth survival rates in these poor nations of need, without any regard for the realities of indigenous practices of birth control, contraception, etc. These "philanthropic" efforts have only served to postpone the day of retribution a few decades further down the historical time line, allowing the well-intentioned "do-gooders" to savor their activities without witnessing the malevolent effects of their thoughtlessness on the conditions which future generations will face.

Understanding

After fifty years of independence from European and other external colonial domination, we witness the product of "freedom". In a few

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cases, i.e., Northeast Asia, hopefully India, Thailand, Malaysia, certainly Chinese ethnic Singapore, we will keep our fingers crossed. Outside of Europe, the United States and Canada, the slippage gains momentum, need increasing exponentially.

Why has the "developing" world not developed? Simple answer, variable human intelligence, with these nations, mostly of the tropic latitudes, inheriting the southern side of the human probability curb for educable intelligence. A fifty-year post-colonial disaster. Who will wager that this state of affairs will not deteriorate over the next 200 years unless radical solutions are initiated? It is simply the case that low on average human intelligence has led to this contrast with the developed north: pandemics, starvation, social and political chaos, religious and cultural primitivism.

A small but crucial example illustrates the problem. Europe's middle/working classes are on a demographic strike. From Italy and Spain, less than 1.2 children per female to Sweden, 2.0 children per female, (U.S. European/Caucasoids, less than 2.0). This compares to the 6-8 children per female noted above for the poorest nations on the planet, Somalia to the Gaza Strip, and the 3-5 children Muslim immigrant females are producing in their Western European adoptive homelands.

A critical dimension of human intelligence is the fecundity issue. This should be intellectually regulated, men and women planning their sexuality and reproduction to fit the external circumstances. These plans ought to encompass a realistic evaluation of their ability to raise these children and ensure the prospects of family life in relation to opportunity and circumstance. Surely, in the American frontier, c.1820, life expectancy and life prospects made an almost unlimited number of children possible, to the extent of the health of the mother. In the overcrowded, tepid circumstances of the impoverished nations, a man and woman having many children, signals either uncaring, unaware, or undisciplined behavior. Poverty is their inevitable prospect.

In certain instances, where the intellectual potential exists amidst a momentarily regressive social context, as amongst the 1.3 billion Chinese, another, centralized solution becomes necessary. Here the national rule is one child per female, with a few ethnic exceptions. Violation brings down upon the individuals and families great personal

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hardship. But, there has to be strong central authority to say we limit you now, in order to assure your future tomorrow. With the Chinese, as middle class opportunity looms, the Italian and Spanish self-disciplines will no doubt quickly kick in.

Given the evidence for this incompatibility with our presumed aims for the entire species to live in a setting of modern secular/scientific, democratic polities, what is the weakening developed world to do? For one thing, accept the reality that the old re-distributionist approaches can never work. Merely transferring the wealth from the "haves" to the "have nots" has failed. Can we accept, under any euphemistic title, the urgent need for the "maternalist" guidance of these nations?

If, both the momentarily wealthy nations as well as the uncorrupted leadership of the recipient nations could face up to reality, their current basic incapacity to move their nations both forward and upward, then a long term strategy for benefiting the human race would become possible. Realistically, current international ideological commitments make this hardly possible. The ultimate unraveling global catastrophe will hit us sometime within the next fifty years. But we must at the least put forward a brief outline of a rational/evidential vision for the future of the species.

Strategy: The Impossible Dream

How can people emerging from colonial supervision, and subject to changing forces which disrupt the traditional kinship protective systems avoid falling under the rule of tyrants or gangsters? For the failing nations of the world, the precondition, is high intelligence. Today, and possibly tomorrow people in all societies under the thumb will be able to obtain the aid, without internal revolutionary slaughter, to free themselves from their real oppressors, and to rule themselves in accordance with high civilizational standards. To do this, they will first need a population of highly educated citizens having the ability to think abstractly, and act on the basis of such concepts as law; a constitution binding on all citizens; property and individual rights; evidence and empirical proof; hypothetical planning that seeks factual confirmation or repudiation.

The ideal is what the eighteenth century colonial leaders in the

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future United States achieved, though through a regrettably bloody revolution. The result here was not tyranny but a constitution that gloried in the high rationality of its citizens. These citizens of a new nation had the mental discipline to live by the law, rational decisions legitimized through the franchise. Undergirding these achievements was the existence of an independent middle class, farmers, craftsmen, traders, teachers and ministers. Religious freedom within one's privacy was assured by the constitution. The public world of action and decision making would be open to scientific canons of rationality, a people who would decide and act on events based on factual evidence, not emotional delusions, exploitations, and supernatural authority.

The assumption was that this people, the citizens of the United States, had the intellectual and educational capability not merely of creating a nation under law, but of prospering through the free and creative entrepreneurial abilities of its people, in open intercourse with the other peoples of the world. The abstract concept of progress was inherent in the spontaneous desire to create an educational environment and institutions which would further the development of knowledge, to guide this people into a future that would be both predictable and beneficent.

This is the dream that the U.S. has for all nations, especially those most in need. But it is a goal that requires populations which in their behavior and mental desires, must themselves grasp these requirements for civilized life, and spontaneously to reach out for such ideals. In some places in our world today we see this open scientific spirit driving the progress of nations. In other societies the people seem to be fleeing reasoned independence before magical and supernatural incantations of both hope and hate, forever to be cut off from a solution to their ongoing descent into chaos.

The U.S. cannot help the world attain to its ideal, until they themselves reveal the capacity and the inclination to strive for civilized, lawful, secular lives, lived in the abstractive mode. High intelligence is required. If we want to emerge from the oncoming disasters of the twenty-first century, a continuation, in difference, from the conflagrations and genocides of the twentieth century, then we need to conceptually recognize that which is presently forbidden. Intellectual capital is required for any people seeking civilizational renewal.

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Book Review

Vietnam, The Necessary War:
A Reinterpretation of America's Most Disastrous Military Conflict
Michael Lind
Simon & Schuster, 1999

Michael Lind has written a fascinating and instructive book. It is most specifically about the Vietnam War, but Lind takes care to place the war, as he should, in the context of world strategy during the Cold War. It is a strength (but also a weakness, for reasons I will explain) of the book that Lind has "followed his mind where it leads," seeking to touch on all facets of the still-continuing debate over the war.

He would almost certainly not agree, but it is at that "macro" level that this reviewer sees the weakest parts of his book: (a) his discussion of the long-standing debate between "minimal realists" and "maximal realists" about international affairs, and (b) his tying into the thinking advanced by several social theorists that American attitudes and policies about military and world affairs has largely reflected the differing orientations of a long-existing ethnic regionalism in the United States. The weakness comes from the reductionism that is inherent in the positions of both types of "realists" and of the "regionalists." Each focuses on a certain thing, albeit valuable in itself, while ignoring much else that is pertinent. This follows the antiseptic pattern of a fair portion of modern social theory, which formulates abstract cubby-holes that substitute, then, for a direct examination of the world in its complexity.

Lind describes himself as a "centrist" with regard to the Vietnam War. But no label captures his thinking adequately, since his is too independent a mind to be neatly encapsulated.

As one might expect a "centrist" would, he repeats certain shibboleths from today's conventional wisdom in the United States, which is left-liberal.

He argues, for example, that the "China hands" whose advice led to the surrender of China to Mao in the late 1940s weren't Communist agents, as Senator Joseph McCarthy saw them, but just "gullible dupes." This suggests, naively in light of the intellectual history of the 1920s and 1930s, that there was a distinction that was really meaningful between

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those members of the American intelligentsia who were active Communists and the many who for so many years simply carried on an impassioned love affair with "the Soviet experiment."

One of the odder manifestations of Lind's centrism is his opinion that the state-induced famines in the Soviet Union in 1932-33 and in China during the Great Leap Forward from 1958-62 were simply the "unintended consequences" of "socialist economic policies." It is hard to believe that the starvation of several million people goes unnoticed by those who by deliberate policy put and then hold those millions in that position.

Lind's mental independence leads him, however, to a great many valuable insights that are by no means simple reflections of the left-liberal worldview. These insights are so numerous that a brief discussion of some of them doesn't fully do the book justice:

1. The view is often voiced that President Nixon's rapprochement with Mao in 1972 was an outstanding stroke of foreign policy acumen – a high point in Nixon's presidency that was overshadowed only by his later disgrace. Lind is courageous enough, though, to see through this, and to declare the rapprochement "morally questionable." Mao, Lind knows, had already proved himself one of the great butchers of all time. Lind points out, too, that the rapprochement did not bear the fruit of causing Mao to stop Red China's abundant support of the Communist "proxy war" against the United States in Vietnam.

2. Unlike many, Lind has a realistic understanding of the nature of Soviet Communism (subject to what we noted above about his equivocation over the state-induced famine). He doesn't accept the idea that Communism was a noble experiment that was warped out of shape by "Stalin's gangsterism or Mao's egomania"; rather, he sees, as has become evident in recent historiography, that it was precisely Lenin's doctrines that produced the horrors.

3. The fact that Lind is, in the main, undeceived about the nature of Communism and does not join in the common double standards regarding it causes him to dissect a number of "myths about Vietnam disseminated by the radical and liberal left." One of these was that Ho Chi Minh was a Vietnamese patriot whose Marxism

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was a thin veneer. The truth, Lind says, is that Ho was "both a nationalist and a doctrinaire Marxist-Leninist." He points out that in the 1920s Ho was "a founding member of the French Communist Party"; that Ho once served as an agent of the Comintern; that Ho lived in the Soviet Union in the 1930s; and that in the 1940s he was a member of the Chinese Communist Party.

4. It has been argued that Ho Chi Minh was "the only legitimate nationalist leader in Vietnam." Again, Lind confronts this with the facts: "At the end of World War II, a number of Vietnamese nationalist factions were independent of Ho's communist-controlled Viet Minh front group." These groups were extinguished when "during the purges that began in March 1946 and peaked in the summer, thousands of potential leaders of non-communist Vietnamese nationalism were murdered."

5. Another myth is that Ho Chi Minh was a Tito-like Communist who sought an independent and neutral role in the Cold War. Lind says, though, that "there is no evidence that Yugoslav-style neutrality was ever considered by the North Vietnamese communist elite."

6. The argument is made that South Vietnam violated international law when it refused to take part in national elections in 1956. Lind notes, however, that the 1954 Geneva Accords calling for such an election were "denounced by the South Vietnamese government and not signed by the United States." At the time of the agreements, the nation of South Vietnam was already recognized by thirty governments, so that it was presumptuous indeed to say that France's consent to the agreements was tantamount to approval by South Vietnam. "None of the major parties in the Vietnam War," in fact, including North Vietnam, South Vietnam, Laos, Cambodia, and the United States, "endorsed the Geneva Agreements."

7. At all times before the Communist victory in 1975, a picture was painted of the unique corruption and illegitimacy of whatever government was in power in South Vietnam. This reviewer has always felt that this criticism was more than ordinarily vicious. Lind tells us that "between 1959 and 1961 the number of South

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Vietnamese officials who were assassinated rose from twelve hundred to four thousand per year." One wonders what would happen to social order and to government in the United States or any other civilized country if thousands of its mayors, city commissioners, and the like, were systematically killed.

8. Barbara Tuchman, the prominent American historian, was among those who argued that the United States missed many "opportunities" to "be on good terms" with Ho Chi Minh. Lind discusses each of these in turn, finding them without merit.

9. Other "myths" that Lind dissects: that the Vietnam Communists were serious about a proposed coalition government; that the Viet Cong were a spontaneous rebellion against misgovernment; that it was foolish for the United States to have been concerned about "the dominoes falling" if the Communists won in Vietnam; that Pol Pot's genocide in Cambodia was brought on by U.S. actions, such as by the "frenzy" caused by American bombing; that Nixon "expanded the war" by his incursion into the Cambodia sanctuaries; that American veterans were emotionally affected more than were veterans of other wars; and that John F. Kennedy intended to pull out of Vietnam.

Although he deconstructs all of these myths from the left, Lind also takes issue (or appears to) with what he calls "the praetorian critique" from the right. This is the view that the war could have been won if President Lyndon Johnson had not closed the door on a winning strategy. Lind sees the various strategic suggestions as having run the risk of a wider war with China and/or the Soviet Union. It seems that his criticism is somewhat equivocal, however, since he himself argues that the United States should have severed the Ho Chi Minh trail and then permanently stationed "tens of thousands of U.S. troops" along a demilitarized zone (such as in Korea) to "deter a conventional invasion of South Vietnam by North Vietnam."

Readers will find the book a valuable source for facts of major importance that few people know. For example, he says it is "one of the most shameful chapters in the sorry history of the American intellectual left" that "the mass murder in North Vietnam that accompanied 'land reform' in the 1950s" was minimized or explained away. He says that

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"between 10,000 and 100,000 Vietnamese were summarily executed for being of the wrong class category." And how many readers will have known that "the North Korean invasion [of South Korea] of 1950 was preceded by a guerrilla war between 1945 and 1950 in which an estimated hundred thousand Koreans were killed"?

It would seem that there is no end to the reading we must do if we are to discover even the most elementary facts essential to understanding the events of the past century. Lind's book is a good place to start.

Dwight D. Murphey

Joseph McCarthy:
Reexamining the Life and Legacy of America's Most Hated Senator
Arthur Herman
Free Press, 2000

The consensus in the United States for almost half a century has been that Wisconsin Senator Joseph R. McCarthy was a loose cannon and extremist, who in his crusade against "Communists in government" used despicable methods to vilify innocent people. To summarize the accepted view of him in such strong terms is in no sense an exaggeration. The noun "McCarthyism" often appears in the writings even of American conservatives when they want to characterize something as grossly unfair or unfounded.

At no time has this been a true picture of the man or his career. The caricature was as obviously false in the 1950s as it is to an objective observer today. A "reexamination of McCarthy's life and legacy," as Arthur Herman is attempting in this book, is made necessary only by the fact that the Left won in the battle with McCarthy, leaving its perspective occupying the field of public opinion. That even conservatives accept that perspective is itself an indication of the extent to which American society has absorbed the ideological coloration of the Left.

What would an "objective" reexamination of McCarthy's career require?

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Before we can answer that, we must make some fundamental decisions about what objectivity demands. Is objective opinion the same thing as respectable opinion, as most people will implicitly insist? Does it require staying within the myths – the immense mental constructs according to which people understand social reality – that set the parameters of our thinking?

To a thoughtful person, objectivity requires this conformity to the myths only if those large mental constructs are correct. If the myths are fashioned out of a selective perception that ignores much that is essential to understanding, a true (as distinguished from a merely apparent) objectivity will require taking full account of the realities that have been ignored.

This is indeed the situation so far as McCarthy and the anti-Communism he championed are concerned. Here are some of the realities that are ignored by the conventional wisdom and that an objective view will have to take into account:

1. That if Nazism was morally and intellectually despicable, Communism was no less so. The consortium of French intellectuals who recently wrote *The Black Book of Communism* estimate from 85 to 100 *million* victims killed worldwide during its 72 year reign of terror.

2. That an appreciation of this fact requires a fundamental reorientation of our thinking. It means moving radically away from the nearly universally-accepted double standard that interprets countless events through a prism that condemns everything Nazi while either minimizing the role of Communist ideology or crediting Communism forbearingly as a misguided idealism. If we were to set aside that double standard, the events of much of the past century would look considerably different to us than they do.

3. That the predominant intellectual subculture in the United States and Europe from 1917 through 1947 was profoundly infatuated with "the Soviet experiment." This was so regardless of whether the particular intellectual was formally a member of the Communist Party ("a card-carrying member") or not. A reading of *The New Republic* during the 1920s and '30s reveals countless "pilgrimages"

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to Moscow for May Day. Even though anti-Communists dared not say it, the predominant intellectual subculture was deeply implicated. For some, the infatuation continued well past 1947; for others, it gave way to the forbearance that is reflected in the double standard. We know that a few, of course, developed a strong revulsion to Communism and came to provide most of the leadership to the anti-Communist opposition.

4. That these first three realities were very little perceived by the elites and professional classes that have held the reins of "respectable opinion" within the United States and Europe. Even as they poured vast treasure into the Cold War (with its episodic hot wars) against Communist expansion, they were in no sense inclined to take a "hard" or "intemperate" view either of Communism or of the intellectual subculture. Above all, they have desired to live unruffled lives in a normal world.

5. Finally, it is relevant to an objective understanding of McCarthy's career to notice that in the context just described *all* active anti-Communists, not just McCarthy, were condemned. The voice of those who saw Communism as evil was largely silenced after McCarthy's "disgrace," but the brave souls who preceded him were damned just as heartily as he was. There was no way that McCarthy or anyone else, no matter what their personality or "methods" may have been, could take a "strident" stand against Communism without bringing this condemnation down onto their heads.

It is the merit of Arthur Herman's book that he has seen through to some of this realities. Its demerit is that he hasn't fully faced up to them. The result is a "reexamination" that has one foot planted in objective fact and the other planted safely within the domain of the "politically correct" conventional wisdom.

I won't dwell upon this latter aspect. It is sufficient to notice the extent to which Herman adopts the semantic of the Left: McCarthy was a "Communist baiter," Nixon a "red baiter." (Can we imagine anyone referring to an opponent of Nazism as a "Nazi baiter"?) He speaks of the "red scare of 1919-1920." McCarthy, he says, decided to "pounce." Blame was "foisted" onto the Owen Lattimore group for the collapse of

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Korea. Herman speaks of "the professional anti-Communists" (such as Budenz and Coplon). And he uses the term "China Lobby" when referring to those who opposed Mao, even though Herman himself informs us that this characterization of them was "invented by the New York Communist Party in 1949." To the extent Herman speaks this idiom and holds its associated attitudes, his book is in no sense a "reexamination."

What *is* new and refreshing about his book, however, is his spelling out of the particulars about a number of issues, large and small, some relating directly to McCarthy and others not, which I will present in no particular order:

1. He sheds considerable light on the "doctored photo" episode in the Army-McCarthy hearings. Herman says that Joseph Welch, the general counsel for the hearings, "seized on a photograph Cohn and McCarthy had entered into evidence showing [Army] Secretary Stevens visiting David Shine at Fort Dix... Welch triumphantly presented to the committee the original photo, which revealed a third figure standing to their right... The implication was clear... [that] McCarthy and his staff had doctored the evidence."

   What Herman reveals is that "in fact the picture had been already altered by *Army photographers* [his emphasis] when they sent the copy on to McCarthy staffer James Juliana... The missing portion changed nothing; it still showed Stevens and Shine beaming at each other in the same good spirits. But the press began talking about the 'faked' and 'cropped' photograph."

2. Edward R. Murrow of CBS's *See It Now* has become a cultural icon for his programs scathingly attacking McCarthy. "Murrow showed him belching, picking his nose, ignoring or berating witnesses...." Herman notes, however, that John Cogley, despite being "McCarthy's most consistently hostile Catholic critic," "sharply attacked Murrow and his producers for their distorted summary and selective use of video clips." He quotes Cogley, who said "a totally different selection of film would turn Senator McCarthy into a man on a shining white steed – infinitely reasonable, burdened with the onus of single-handedly cleaning out subversives in the face of violent criticism."

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3. Herman speaks of "the standard claim that McCarthy had never exposed a real Communist in the government," and says that "was demonstrably false," citing specifics.

4. He points out that "McCarthy sued and forced a retraction" after the *Syracuse Post-Standard* reported that McCarthy had requested a faked telegram.

5. He tells how McCarthy's enemies in the Senate wrote a report that "implied that McCarthy had solicited... $10,000 from the Lustron Corporation as a bribe, which he had not." Herman says "the report was a smear, pure and simple."

6. Herman says there "was no foundation" to a rumor spread by Nathan Pusey, president of Lawrence University, that "McCarthy liked to carry around a copy of *Mein Kampf*."

7. It is often said that McCarthy accused innocent people of being Communists "on flimsy evidence." But Herman gives facts to the contrary: "Executive sessions, which opponents represented as McCarthy's secret 'star chamber' proceedings, helped to protect witnesses by preserving their anonymity... Cohn could point to literally hundreds of subpoenaed witnesses who in executive session were allowed to look at the evidence against them, and if they were able to refute it, were dismissed."

   In the book McCarthy's Fight for America, McCarthy explained how he had not wanted, despite the insistence of Democrats in the Senate, to "name names" publicly at the time of the Tydings Committee's hearings into his charges, because the facts about each case should first be gone through carefully. He says he only released the names publicly after Senator Tydings told him the hearings would be open – and that it was right after that that Tydings had shifted the hearings into executive session. The truth of McCarthy's contention about this is crucial, since it goes to the heart of the perception of "McCarthy's methods." It is significant that Herman explains the whole matter consistently with McCarthy's own explanation: "He had specifically asked Tydings to hold the hearings in executive rather than public session... However, the Democrats had voted to make them open to the public and press. McCarthy began the day with that assumption, handing out copies of his testimony."

8. Some of Herman's deviation from the conventional wisdom comes with regard to things that don't relate directly to McCarthy. Americans are accustomed to hearing of Hitler's attack on Poland

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> in September 1939, and I have always considered it significant that they are seldom told how Stalin came into Poland from the east, taking half the country. Herman shows that he has the facts straight when he says "Stalin and Hitler decided to parcel out Poland and the Baltic republics between them." And he sees the fallacy in the conventional view that World War II was a struggle between the "democracies" and the Axis powers, pointing out instead that the war was "a triangular conflict" in which "Stalin and his allies" made up a third force.

Part of his discussion takes him back to the Sacco-Vanzetti case, one of the Left's celebrated causes in which two anarchists were supposedly sent to the electric chair even though they were innocent. "Subsequent Ballistic tests conducted in the 1980s," Herman tells us, "confirmed that it was they who had pulled the trigger."

There are revelations, too, about the Owen Lattimore case; the belatedly Communist background of Michael Straight, editor of *The New Republic*; the Alger Hiss case; the Rosenberg atomic spying case; and the Annie Lee Moss case.

Accordingly, despite egregious faults (which include an attempt to superimpose a psychoanalytical explanation onto McCarthy's life), the book makes a valuable contribution and is worth reading. Perhaps it is the incipient beginning of a true reexamination.

Dwight D. Murphey

Goodbye, Good Men:
How Liberals Brought Corruption into the Catholic Church
Michael S. Rose
Regnery Publishing, Inc., Washington, D.C., 2002

When the media in the United States get onto a story, such as they have recently with the sexual abuse of children in general and, more particularly, the sexual abuse of minors committed by Catholic priests, one is tempted to think that the issue is being blown out of proportion. The faddish nature of these temporarily white-hot issues seems almost a

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guarantee of that. We live in a time when much is either overblown or ignored, so that "proportion" is essential to understanding the world around us.

It is interesting and important, then, to find that, despite the superficialities of media coverage, the problem of sexual misbehavior in the Catholic Church in the United States is actually considerably more extensive in fact, and more profound in implication, than the press and television accounts have led the public to believe. Far from being exaggerated, the problem has been seriously understated and involves facets that few of us know.

From time to time during the recent crisis within American Catholicism, it has been suggested that the problem is broader than pedophilia, which is the way the media see it. Those with a deeper insight see it as a problem of widespread homosexuality among priests.

But even this, according to Michael Rose's book, is too narrow. It is true, he says, that homosexuality has come to dominate the modern Jesuits and is militantly present within many seminaries. In fact, he cites chapter and verse about that. The homosexual presence, though, is a subset of something larger: an assumption of power in much (though not all) of the Church in the United States by a non-orthodox, secular, "politically correct" (i.e., fashionably leftist) form of Catholicism that places itself at odds with the traditions and teachings of the Church. There is a desire to "reenvision" the Church, overturning the self-sacrificing spirit that has so long been central to the priesthood and substituting a much more secular and "human potentials" orientation. This includes a drive for women priests, an affirmation of "gay" life, lay-run parishes and a lay ministry, soft doctrine, a desacralized worship, and the abandonment of priestly celibacy.

Rose doesn't put it quite in these terms, but one way to see all this is that the Left has to a significant degree included the American Catholic Church in its "march through the institutions." The Left now dominates virtually all opinion-forming sectors in American life. The forces at work stem most immediately from the generation of the '60s, now aged into senior status. Somewhat further back, we can see the work of Gramsci, who gave the "march through the institutions" its name, and the rest of the Frankfurt School from Germany of the 1920s. And beyond that, we

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see the longterm presence since the early nineteenth century in Europe and America of an intelligentsia at war with the predominant culture. So far as the move away from Catholic orthodoxy is concerned, it is sensible to take even one further step back and see the role of the Enlightenment and modern secularism and science. (These are not the same things as the Left, even though the Left, which arose later, embraced some parts of them.)

There are several layers to *Goodbye, Good Men.* Most pertinent to the sexual-abuse scandals is its detailing the homosexual presence within America's priesthood today. Rose reveals what most outsiders will never have suspected: sex workshops, graphically explicit films, and a seminary textbook showing oral sex.

An aspect of particular importance is his telling how young men who are both non-homosexual and who believe in traditional Catholicism are weeded out of the seminaries and barred from becoming priests. The new orthodoxy isn't passive; instead, it actively screens out those who don't fit its mold. The existence of this ostracism is perhaps the main thrust of his book.

In recent years, there has been much discussion of a "crisis" from a shortage of young men wanting to become priests. Many have blamed the Church's insistence upon vows of celibacy, arguing that it turns young men away from priestly life in an age of sexual liberation. To Rose, however, the problem does not stem from this at all. A life of self-sacrificing commitment continues to appeal strongly to many where it is allowed to flourish. The "shortage" occurs where men of orthodox beliefs are barred or become disillusioned in a seminary by the degeneracy they see around them. Not only is celibacy wrongly made the scapegoat for the shortage of priests (and for the rampant pedophilia), he says; it is also made the pretext for much more. Because celibacy is said to cause these problems, there are many who argue for a married priesthood and the ordination of women.

For Catholic readers, all of this will be relevant to vital concerns. For others, much of it will necessarily seem intramural to the Catholic faith. Both types of readers will, however, find much that is significant in Rose's description of the ideological, cultural and sexual aspects of today's Church, since they have implications for the society in general.

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The scandal over priests' sexual abuse of children is, as Rose tells us, much broader than it appears.

Dwight D. Murphey

The Politics of the PTA
Charlene K. Haar
Transaction Publishers, New Brunswick (USA)
and London (UK), 2002

If anyone believes that the Parents-Teachers Association (PTA) in the United States is a benign and noncontroversial organization devoted to improving education in a nonpolitical manner, a reading of Charlene K. Haar's masterful *The Politics of the PTA* will disabuse the reader of such an illusion.

Ms. Haar serves as President of the Education Policy Institute and as a Research Associate of the Social Philosophy and Policy Center at Bowling Green State University. She has been a diligent observer of education in the United States through attendance at conferences, research and writing, and as a former teacher and candidate (though unsuccessful) for public office (United States Senator).

In this thorough and insightful study, she traces the early history of the organization, which evolved from a mothers only group to an organization representing parents and teachers. She focuses on the extensive agenda of the PTA over the years, the interrelationship between the National Education Association and its role in contemporary politics.

The author also devotes a chapter on the Goals 2000 program for education, an effort extending federal controls over state and local education. The concluding chapters zero in on the PTA's fundraising, the conflicting approaches to parental involvement, and the future of the PTA.

She states her theme up front: while the PTA has been considered as a primary representative of most public school parents and teachers,

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in fact, "the PTA is now actually a minor player after almost four decades of decreasing membership." (p. 5). The book is especially valuable because of the author's examination of how the unionization of the National Education Association (between 1964-1975) influenced NEA/PTA relations, particularly coming to a head over the issue of teacher strikes. The neutrality of the PTA compromised its independence by its refusal to oppose a major position of the teacher unions.

Over the years, the author documents, the NEA influence on the PTA has been all encompassing, i.e. influencing speakers at PTA conventions, support for union backed political positions, and dominating issues coming before the PTA. Thus, the PTA has been out front in opposing charter schools, supporting controversial sex education programs, and encouraging a strong federal role (and control) of education – all in accord with NEA's goals.

The author calls for a thoroughgoing reform of the PTA so that it would once again represent the best interest of children in education, rather than a group encouraging parents to lobby for its agenda, i.e. welfare and education legislation.

She writes: "Today's PTA is largely a potential arm of the teacher unions, a force that did not exist when the PTA was founded at the end of the nineteenth century." (p. 159) She cites the hopeful signs of independent groups (i.e., united parents associations, independent national parent organizations) which are challenging the dominance of the PTA.

Ms. Haar has made a major contribution to examining sinister and harmful influences in education. *The Politics of the PTA* should be required reading for educators, public officials, school board members, parents and all others who believe organizations like the PTA should serve to improve education, rather than serving as a front group for teacher unions.

Donald J. Senese

Dr Senese is a former Assistant Secretary of Education, who presently works in education and political consulting in Washington D.C.

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of which he is Associate Editor.

A collection comprising a great deal of his
writings has now been gathered together
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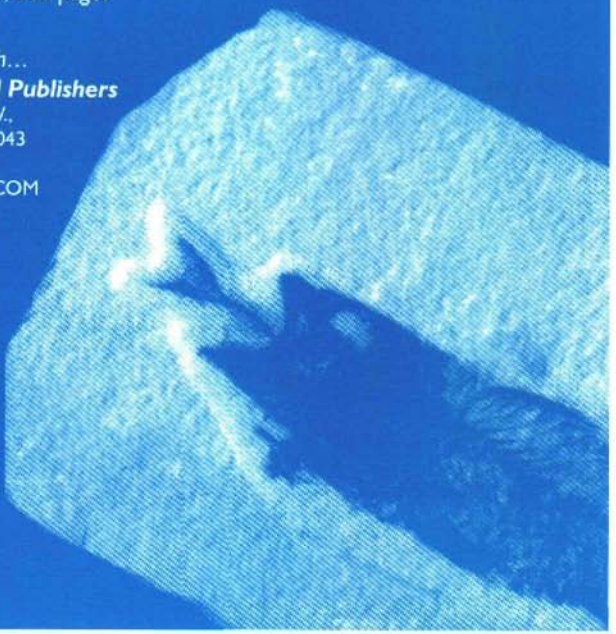

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